DOCUMENT RESUME

ED 275 297 IR 012 354

TITLE Learning Technologies and Telecommunications in New York State. A Status Report on Education Department Activities Relative to the Action Recommendations Approved by the Board of Regents on May 24, 1985.

INSTITUTION New York State Education Dept., Albany. Center for Learning Technologies.

PUB DATE May 86

NOTE 82p.; For the report containing the action recommendations, see ED 259 707.

PUB TYPE Reports - Descriptive (141)

EDRS PRICE MF01/PC04 Plus Postage.

DESCRIPTORS Annual Reports; Educational Facilities Improvement; *Educational Objectives; *Educational Quality; *Educational Technology; Equal Education; *Instructional Improvement; Instructional Materials; Professional Development; *Statewide Planning; Teacher Education; *Telecommunications

IDENTIFIERS *Excellence in Education; New York

ABSTRACT

In May 1985, the New York State Board of Regents approved a series of action recommendations designed to enhance the use of learning technologies and telecommunications in the state. The 15 recommendations are related to three major goals: (1) excellence--interactive learning technologies and telecommunications should be used to achieve quality within the New York educational system and applications should reflect the highest standards; (2) equity--technological resources, including the information conveyed by these technologies, must be available to all on an equitable, nondiscriminatory, and nonstereotyped basis; and (3) efficiency--use of technologies should be employed to achieve better use of educational resources and enhance professional effectiveness. Initiatives undertaken by the Education Department to implement these recommendations are presented in this report within the context of the appropriate goals. At the April 1986 meeting of the Regents Advisory Council, several major policy implications of technology applications were considered and the council's recommendations are included in this report along with an outline of directions to be taken during the second year of this program. (DJR)

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Learning Technologies and Telecommunications in New York State

A Status Report on Education Department Activities Relative to the Action Recommendations Approved by the Board of Regents on May 24, 1985

May 1986

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I. INTRODUCTION

In May 1985 the New York State Board of Regents approved a series of Action Recommendations related to the enhanced use of learning technologies and telecommunications in New York State. Those recommendations, formally prepared in a document entitled Learning Technologies and Telecommunications in New York State: Action Recommendations, provide a blueprint for activities responsive to the need for renewed quality and standards in our educational system, for the preservation of access to technological resources for all groups, for economic revitalization of the state through appropriate education, and for using the research and investments made in other sectors for the expansion of learning to educational and cultural institutions.

The series of fifteen action recommendations approved by the Regents in May 1985 are related to the three major goals:

Excellence

Interactive learning technologies and telecommunications must be used to achieve quality within our educational system and the applications must reflect the highest standards.

Equity

Technological resources, including the information conveyed by the technologies, must be available to all on an equitable, nondiscriminatory, and nonstereotyped basis.

Efficiency

Interactive learning technologies and telecommunications must be employed to achieve greater efficiency in the use of educational resources and enhanced professional effectiveness.

All of the fifteen action recommendations and the Education Department activities related to them are presented in this document within the context of these three overriding goals.

While all Department initiatives are reported in this document, several major Education Department efforts related to the learning technologies have emerged since the Regents-approval of the"Action Recommendations" in May, 1985:

Emerging Technology Applications: Distance Learning and Technology Network Ties (TNT). During the 1985-86 school year, there has been a dramatic increase in the use of telecommunications technologies for "distance learning" and administrative applications. The State Education Department has addressed the vital role of telecommunications technologies through two major efforts. The Center for Learning Technologies has gathered profile information on twenty-six New York State "distance learning" projects, which have been undertaken by school districts, BOCES, and postsecondary institutions. The distance learning projects have been initiated to address the needs

of small schools with limited resources and declining enrollments to offer enhanced learning opportunities for students. Nine projects are currently operating, using either cable, broadcast, or telephone-based telecommunications systems, to link a master teacher and a class in one school to students in classes in other schools. The networks, which consist of two-way audio and video interaction, provide courses, such as calculus, astronomy, and second language instruction. The remaining seventeen projects have undertaken significant planning activities, and are exploring the potential application of other telecommunications systems as well as the use of cable, broadcast, and telephone-based systems. Significantly, the twenty-six distance learning projects involve nearly one-half of the total BOCES and school districts of the State. It is expected that all BOCES and nearly all school districts will be exploring the potential of distance learning by the end of the 1986-87 school year.

The Center for Learning Technologies developed several initiatives during 1985-86 to enhance field awareness of the potential applications and benefits of distance learning networks. For example, Center staff produced a Distance Learning teleconference on February 4, 1986, which resulted in numerous inquiries for information from schools, BOCES, libraries, and postsecondary institutions. The Learning Technology Fair VI, which was held on February 21 and 22, 1986, presented several distance learning sessions and workshops, which were the most heavily attended presentations at the Fair. Center staff are developing a publication, Television Technology and Telecommunications In New York State: A Publication on Instructional Television, Video Production and Distance Learning, which will be distributed in Fall 1986. In July, 1986, the Center's Video Production Program Management area will host a two-day video production workshop for fifty teachers, to include the development of materials for replicating the workshop throughout the State. These projects were undertaken to provide technical assistance to the more than 7,000 teachers currently using television technologies in classrooms, as indicated by the 1985-86 BEDS data survey. Center staff have provided technical assistance to the twenty-six current Distance Learning pilot projects in the form of liaison activities, planning assistance, and program review. Center staff are also exploring the potential educational applications of several new, satellite-based distance learning technologies in cooperation with the private sector. Department staff are currently preparing a 1987 legislative proposal to provide funding to school districts for planning, technical assistance, and operations.

The major Department initiative related to the application of telecommunications technologies for administrative and instructional-management purposes is the Technology Network Ties (TNT) Program. Funded for $3.5 million in 1986-87, the project employs advanced telecommunications and database technology to develop powerful networking capabilities from the State Education Department to three pilot BOCES for the following purposes: (1) to provide more timely access to information to reduce paper work and mailing costs; (2) to enhance frequency of communication amongst educational institutions; (3) to improve production and review of Department documents; (4) to facilitate reporting to the Department; and, (5) to explore

instructional applications of telecommunications networks in the areas of writing, communications, database use, and distance-learning. Funding has been provided for the 1986-87 year to develop a statewide computer-based support system to improve information storage and transfer and establish new networking among State, regional information centers, BOCES, and local school districts.

Technology Applications for Instruction. A major survey of computer usage in public and nonpublic schools was first conducted by the Education Department in the Spring of 1983. Data indicated that the total public/nonpublic schools had acquired approximately 25,000 microcomputers and 4,300 terminals. The hardware was used predominantly for instructional purposes. More than 84 percent of all microcomputers were solely dedicated to instruction. Subsequent survey data gathered by the Information Center on Education's Basic Educational Data System in Fall 1984 and Fall 1985 showed dramatic infusions of microcomputers within the State's public and nonpublic schools. For example, the number of microcomputers in the total public and nonpublic K-12 schools rose from 69,484 in Fall 1984 to 106,214 in Fall 1985, which is a 52.9 percent increase. Also, the percent of students using microcomputers regularly, defined as direct interaction with a computer or terminal as a part of a planned sequence of instructional activities, rose from 41.3 percent to 52.5 percent. Data from the Spring 1983 special Survey of Computer Use provided indications of instructional applications of microcomputer technologies. For example, data on the frequency of use of instructional software by curriculum area indicated that the most frequent instructional software use was in the area of mathematics (45.5 percent of schools using the curriculum). Science and foreign language instructional software were used with less frequency: 35.4 percent and 9.7 percent of schools using the curriculum, respectively. Data also indicated that, while drill and practice applications of software were high in most content areas, 34.2 percent of all problem solving software acquired by the public and nonpublic schools was used for occupational education, and 42.2 percent of the simulation software was used for social studies education. Survey data gathered for Fall 1985 related to the instructional applications of other learning technologies indicated that total public and nonpublic schools have 15,729 video cassette recorders, and nearly 43,000 television sets. Data also indicated that 1,030 public/nonpublic schools are involved in television production for instructional use, and over 71,000 teachers use television for instruction in public/nonpublic schools. Related to distance learning capacities, public and nonpublic schools have 87 satellite dishes. Also, 4,323 schools receive public television broadcasts and 2,522 schools have cable access.

Media Distribution and Technology Staff Development. The Center for Learning Technologies Media Distribution and Technology Staff Development program, which was required by the Legislature to be financially self-sufficient, has shown significant growth during the last two years. For example, the gross revenues for 1985-86 are $461,383. The two major revenue categories are training, which grew from $35,400 in 1983-84 to $331,383 in 1985-86, and video distribution, which grew from $51,452 in 1983-84 to more than $130,000 in 1985-86.

This effort has also secured at no cost the acquisition of 125 video programs, valued at $4.68 million, and $400,000 in hardware consignments.

Regents Advisory Council on Learning Technologies. In the policy arena, the Regents Advisory Council on Learning Technologies considered several major policy implications of technology applications at their April 1986 meeting. Among the actions taken, the Advisory Council made specific recommendations to the Department to reassess the concept of cooperative service aid to insure equitable access and financial incentives for local school acquisition of the most sophisticated and cost-effective technologies available for instructional purposes. The Regents Advisory Council also made recommendations related to teacher preparation, distance learning, instructional technology applications for nonpublic schools, and public/private cooperative efforts. All of these important Advisory Council recommendations are reported in this status report under the appropriate Regents Action Recommendations.

II. ORGANIZING FOR ACTION

Central to the Education Department's activities to address the Regents-approved action recommendations, the Center for Learning Technologies was charged with two functions. These functions are designed to ensure that the Department's learning technology and telecommunications initiatives are implemented across the major Program Offices of the Department and across the major educational, cultural, and industrial sectors of the State. These functions are:

- The coordination of further development and refinement of the Department's recommendations and plans through cooperative efforts with the four major Program Offices. **The intra-Departmental Learning Technologies Task Force** serves as the mechanism for ensuring that all recommendations and activities address the vital needs of Department Offices.

- The fostering of effective alliances between educators and producers in support of Regents initiatives for revitalizing the economy for the State. Concurrently, serve an integrative function by fostering ongoing alliances among the full range of educational and cultural institutions of the State. **The Regents Advisory Council on Learning Technologies**, comprised of experts representing all of the State's educating institutions, serves a major role in this regard, and also provides vital policy and legislative guidance to the Department relative to learning technology and telecommunications applications.

In response to the Regents approval of the action recommendations and their indication of the central enabling functions required, Commissioner Ambach formalized the intra-Department Learning Technologies and Telecommunications Task Force in August 1985 and provided a charge to that group directly related to pursuance of the Regents recommendations. Central to that charge was enhanced communications and cooperative technology program development. As an initial action, the Internal Task Force developed a **Compendium of Technology Initiatives of the New York State Education Department** which has served as a primary source for the preparation of this status report.

Concurrent with the strengthening of the internal mechanism for addressing the action recommendations, the structure and operation of the Regents Advisory Council for Learning Technologies was enhanced to ensure that the valuable guidance of the Council's membership was secured on all major program, policy, and legislative issues relative to the application of learning technologies and telecommunications to the process of lifelong learning.

The complementary work of the intra-Departmental Learning Technologies Task Force and the Regents Advisory Council on Learning Technologies has been instrumental in guiding Department initiatives in response to the action recommendations and was vital to the preparation of this first annual status report.

III. PROGRAM, POLICY, AND LEGISLATIVE INITIATIVES BY GOAL AND ACTION RECOMMENDATIONS

The Department initiatives relative to each of the fifteen Regents action recommendations are briefly detailed in this section by recommendation within the context of the appropriate goal. As is the case in any such report, many activities reported in relation to one specific recommendation and goal area may have implications for one or more of the other recommendations. Review and assistance by the intra-Department Learning Technologies Task Force and the Regents Advisory Council on Learning Technologies was instrumental in placing the activities so as to best reflect their intent and intended outcomes.

Nearly every activity reported in this document is more fully explained as a discrete entry in the Compendium of Technology Initiatives of the New York State Education Department, which is available from the Center for Learning Technologies. The cross-reference between this "Report" and the "Compendium" is the parenthetic code (CLT: Center for Learning Technologies; HPE: Higher and Professional Education; OVR: Office of Vocational Rehabilitation; CE: Cultural Education; ESC: Elementary, Secondary, and Continuing Education) shown at the close of the activity entry.

For those desiring to immediately secure information related to the technology activities in this report, see the Appendix for a State Education Department Contact Person referenced by parenthetic code. Those desiring a full copy of the Compendium should contact the Center for Learning Technologies, Suite 9A47, CEC, New York State Education Department, Albany, New York 12230.

GOAL ONE: EXCELLENCE. To employ learning and telecommunications technologies in support of enhanced standards and quality for New York's cultural and educational institutions by supporting the major plans for education in New York State, such as the Regents Action Plan to Improve Elementary and Secondary Results in New York, the Regents Statewide Plan for the Development of Postsecondary Education in New York State, 1984, Comprehensive Plan for the Office of Vocational Rehabilitation, and The Regents Long Range Plan for the Office of Cultural Education.

RECOMMENDATION 1

The Department will develop a process for creating a learning technologies and telecommunications research and development agenda. The agenda developed will serve as a basis for seeking State, Federal, foundation and commercial support for innovative developmental projects as well as operational pilots.

ACTIVITIES

1.1 The Center for Learning Technologies has submitted a proposal to a foundation to fund a national technology policy study that will result in specific recommendations for State Education Agency policies to enhance learning technology applications within elementary and secondary public/nonpublic education. This study will build upon earlier studies of the Carnegie Corporation and the National Institute of Education. If funded, the study will be undertaken in cooperation with the Council of Chief State School Officers. (CLT-8)

1.2 Elementary, Secondary and Continuing Education Planning and Support Services has developed the ADROIT research project, which uses the ADROIT "authoring" system for the IBM PC with interactive videotape/videodisc to develop training and instructional courseware. Applied Data Research has donated eight ADROIT PC systems, valued at $90,000, for testing at three BOCES, the Bronx High School of Science, and Rensselaer Polytechnic Institute. (ESC-4)

1.3 A proposal has been developed by New York Institute of Technology for submission to a foundation to establish a statewide computer teleconferencing network of 350 elementary, secondary, and postsecondary institutions using the PARTI teleconferencing system. Topics will include curriculum conferences on the Regents Action Plan requirements for mathematics, science, language arts, and technology education. The Department is acting in a liaison role on this project. (CLT-11)

1.4 The Office of Postsecondary Policy Analysis has served a liaison role to the New York State Science and Technology Foundation, which administers several major research and

development grant programs and projects. The major programs are:

1.4.1 Centers for Advanced Technology. Seven Centers for Advanced Technology were funded in 1983 at approximately $1 million per Center for a maximum of four years. Twenty-six public and independent postsecondary institutions are involved with the Centers. The Centers conduct applied research in the technologies, leading to economic development, through a partnership involving research universities, industry, and State government. (HPE-1)

1.4.2 Research and Development Grants Program. An annual program of research and development grants to college and university-based researchers to conduct scientific or technological research was implemented in 1985-86. Grants of up to $50,000 are available. (HPE-2)

1.4.3 Cornell Supercomputer Center. The National Science Foundation named Cornell University among four universities in the Nation which received a total of $200 million in grants over the next five years to establish supercomputer centers for use by other research universities and industry. The State Legislature pledged $800,000 per year in support of Cornell's Theory Center over the five-year period. (HPE-3)

1.4.4 Regional Technology Development Organizations. Nine Regional Technology Development Organizations (TDO), which are funded through state grants ranging from $25,000 - $200,000 per year, have been established for the attraction, development, and expansion of science and technology-based economic activities. There are plans to establish a tenth TDO. (HPE-4)

1.4.5 Productivity Development Program. A Productivity Development Program (PDP) was initiated in 1984-85, with a total of $150,000 divided among four firms. The program provides matching grants to New York State manufacturing firms for the purpose of analyzing the possible use of new technologies for productivity. Funding was increased to $450,000 for 1985-86. (HPE-5)

1.5 The Science Service has received funding to evaluate lake water quality using the numerical model, CE-QUAL-R1. The model, which is currently being applied to Lake George, describes thermal energy, biological and chemical effects. (CE-15)

1.6 The State Archives, in cooperation with the Governor's Office of Management and Productivity, has undertaken survey research of special media records in nineteen selected agencies, to develop a plan for the archival preservation of selected State-government, machine-readable, audio-visual and micrographics records that have historic, legal, or research value. (CE-20)

1.7 Elementary, Secondary, and Continuing Education Planning has received major Legislative funding to implement the Model Schools Technology Project, which is designed to investigate all computer applications to elementary and secondary instruction. Currently, the project is operating in six upstate school districts, and has involved the training of 40 teachers on computer applications. (ESC-1)

LEGISLATION/POLICY

1.8 A new proposal has been submitted for the 1986 legislative program, HP-2, which provides more than $5 million per year to support college and university based research projects by authorizing matching grants for the acquisition of research equipment. If enacted, the funding would further strengthen the statewide research and development program by providing postsecondary research institutions with requisite hardware for conducting research. (HPE-17)

1.9 The Center for Learning Technologies has coordinated technology development initiatives through the State Education Department's Coordinator of Development to ensure that these projects reflect Regents and Department priorities.

GOAL ONE: EXCELLENCE

RECOMMENDATION 2

The Department will develop a policy and systematic plan of priority "producer/consumer" forums to provide for ongoing participation of Department and field staff in the development of learning technology materials in a variety of media formats. The main goal of these collaborative forums is to enhance the quality of materials and systems to ensure a "match" with the content and pedagogical concerns of educators and professionals at the local, regional and State levels.

ACTIVITIES

2.1 The Center for Learning Technologies has forged new "partnerships" with producers of learning technology for the purposes of establishing donation programs, fostering staff development, achieving significant price discounts, and enhancing quality technology products. During the current year, partnerships have been established with several companies and have resulted in $405,000 in new consignments. (CLT-15). These include:

- Two interactive videodisc systems, valued at $14,000.
- A local area network and software for linking personal computers and sharing software, valued at $60,000.
- Twenty Apple computer systems, valued at $60,000.
- A mini-computer comprehensive electronic office automation system, valued at $170,000.
- Twenty computer assisted design personal computers, including twenty color monitors, valued at $90,000.
- Four "Voyage of the Mimi" television, print, and software programs, valued at $11,000.

2.2 On June 18, 1985, a Publisher's Software Forum, attended by 60 national software publishers and coordinated by Apple Computer, Inc., was held at the Cultural Education Center. The purpose of the Forum was to brief publishers on new curriculum plans as required under the Regents Action Plan and to explore ways in which computer software might be matched with elementary and secondary education curriculum. Briefings were provided by Department staff.

2.3 As a follow-up to the Publisher's Forum, Apple hosted regional sessions in Syracuse (December 10, 1985), which featured 38 publishers and was attended by 300 local educators, and in Buffalo (December 11, 1985), which was attended by 40 publishers and 400 local educators.

Additional forums are scheduled for May 1986 in Albany, Rochester, and Olean. Department staff will attend these sessions.

2.4 On November 6, 1985, CBS Educational and Professional Publishing, in cooperation with the Bank Street College of Education, hosted a "Voyage of the Mimi" Forum in Albany, which was attended by 60 educators. Presentations focused on curriculum and staff development issues. Additional Mimi Forums are scheduled for 25 locations throughout New York State at BOCES, postsecondary institutions, school districts, and Teacher Resource and Computer Training Centers. Approximately 1200 local educators will attend these sessions.

2.5 The Center for Learning Technologies sponsored on December 3, 1985, a Computer Assisted Design (CAD) Forum, which was attended by 60 local educators and included presentations by 6 major producers. The Forum exposed educators to new technology applications, emphasizing the importance of creating a link between classrooms and the workplace.

LEGISLATION/POLICY

2.6 In recognition of the need to develop mutually productive relationships with the commercial sector as they relate to the enhancement of technology products and services and in light of the sensitivity of such relationships, the Regents Advisory Council on Learning Technologies recommended on April 15, 1986 that the policy developed to govern these partnerships address the following:

- The policy should not restrict competition but rather encourage it.
- The Department should not be placed in the position of endorsing a commercially developed product.
- Members of the Department should not profit from such partnership programs.
- The elements of a partnership program should include one or more of the following: a statewide cost reduction program; provision by the vendor of appropriate staff development; and, openness to teacher involvement in the development of products.
- The policy should address copyright provisions, equity concerns, and state licensing agreements in order to provide the widest access to resultant products.

- The policy should incorporate some form of "sunshine provision" by publicly stating (1) what the elements of the agreements reached or negotiated are and (2) the timeline for the partnership effort.

- The policy should include a provision that the Commissioner has the right to terminate a relationship if it is determined to be in the best interests of the State and the integrity of the Department. (CLT-42)

GOAL ONE: EXCELLENCE

RECOMMENDATION 3

Appropriate Department offices will encourage the review of certification programs to determine whether they should be changed to assure that minimal competencies and knowledge about the uses of the learning technologies are included in certification requirements.

This is consistent with the recent recommendation of the Teacher Education, Certification, and Practice Board that "Colleges...include experiences in teacher preparatory programs that will ensure that graduates of teacher preparatory programs are aware of developing technology, able to use it in instruction, and (are) sensitive to its impact on pupils; and to provide staff development for faculty that will ensure a continuing awareness of the impact of technology throughout the teacher preparatory program."

LEGISLATION/POLICY

3.1 Commissioner Ambach met with the Teacher Education, Certification, and Practice Board on February 6, 1986, and charged the members with reporting to him on new recommendations for certification programs. The Commissioner specifically requested that the Board review requirements related to the utilization of instructional technology. The Commissioner intends to make a report to the Regents in either late Spring or early Summer 1986 on the series of changes recommended for all certificated personnel in New York State. Currently, a subcommittee of the Board has been formed to study the new requirements and will make recommendations to the Board at its Spring 1986 meeting. It is anticipated that recommendations related to new requirements for certification will address required minimal competencies related to instructional computer usage.

3.2 In recognition of the need to assure that a minimal level of technology competence is acquired in teacher preparation and inservice programs, on April 15, 1986 the Regents Advisory Council on Learning Technologies supported the recommendation of the Teacher Education, Certification, and Practice Board that "Colleges...include experiences in teacher preparatory programs that will ensure that graduates of teacher preparatory programs are aware of developing technology, able to use it in instruction, and (are) sensitive to its impact on pupils; and to provide staff development for faculty that will ensure a continuing awareness of the impact of technology throughout the teacher preparatory program."

The Regents Advisory Council on Learning Technologies further recommended that additional consideration must be given to the following:

- Technology training must be an integral part of the entire teacher preparatory program as opposed to a separate course of study; the technologies should be infused within all elements of the preparatory program.

- The concept of technology should be broadened to include all of the technologies and not limited to computers.

- In the planning and development of the technology components for a teacher preparatory program, consideration must be given to the concurrent development of follow-up inservice programs operable throughout a teacher's entire career.

- Information on technology requirements for teacher training should be gathered from other States to inform the considerations and policy development of the Department. (CLT-42)

GOAL ONE: EXCELLENCE

RECOMMENDATION 4

Model learning technology staff development programs will be developed by the Department. These programs will be delivered in targeted program areas to train a variety of educational and cultural professionals to ensure that the technologies are employed to enhance the standards and qualities of educational and cultural programs. These models will address the competencies and knowledge required for professionals to integrate the full range of appropriate learning technologies within their respective disciplines and program areas.

ACTIVITIES

4.1 The Center for Learning Technologies Staff Development Program has developed 43 Technology Training Institutes. Constituencies served include BOCES, Teacher Resource and Computer Training Centers, school districts, colleges and universities, public libraries and museums. Since April 1985, the Center has offered one or two-day Institutes to more than 700 participants. (CLT-17)

4.2 In September 1985, the Center was awarded a Department of Corrections two-year training grant of $438,800, which will train 225 instructional and central administration staff for an average of 17 days each. Courses will include micro and mini-computer applications related to the vocational education environment of the State's 40 prisons. Training will be focused on remedial applications during the first year; during year two, there will be an expansion to bilingual education, special education, vocational education and testing. (CLT-19)

4.3 The Center is currently providing, under a second-year grant of $60,000 from the Governor's Office of Employee Relations, management applications courses using computers. Nearly 400 state employees have been trained. (CLT-20)

4.4 The Center is currently coordinating with the Department's Office of Personnel and Labor Relations and the Office of Elementary, Secondary and Continuing Education to provide staff training to SED staff in four areas: word processing, database management, spreadsheet and graphics. SED planning committees chaired by CLT staff and with SED content specialists are determining specific courses to be offered. (CLT-24)

4.5 The Center has developed the Technology Applications Planning Program (TAP) by modifying a nationally-recognized technology planning model in use in California, Massachusetts, Rhode Island, Pennsylvania, Texas, and several other states. Extensive modifications were made to the

original planning model to include: the Board of Regents and the State Education Department's curriculum and testing mandates; resources available in New York State for hardware/software purchases; the tradition of local district autonomy in planning; wide variation in district wealth and size; and varying level of current technology implementation within the specific district. The TAP program has been extensively pilot tested with 9 school districts (Fall 1985) and an additional 8 districts (Spring 1986). (CLT-26)

4.6 The Public Broadcasting Program has developed a "curriculum matrix" of video resources for providing staff development experiences to ensure that public television programs are employed in support of new curriculum objectives required under the Regents Action Plan. The "matrix" was cooperatively developed by the Instructional Television Directors of the State's Public Broadcasting Stations and SED content areas of language arts, social studies, health education, science, mathematics, safety education, and technology skills. (CE-28)

4.7 The State Archives has developed a video production, "A Useable Past: The New York State Archives," which describes the work of the State Archives in identifying, preserving, and making available the records of state government that have continuing research value. The video program will be instrumental in inservicing New York State educators on the role those archival documents may serve in supporting new curriculum requirements. (CE-18)

4.8 A video broadcast teleconference, reaching an audience of 50,000, was produced on "The Regents Action Plan" (October 1, 1985). The teleconference explored and answered questions related to the Regents Action Plan, in particular staff development issues. Video segments included New York State educators introducing the key concepts. (CLT-32)

4.9 The Public Broadcasting Program, in cooperation with the State Public Broadcasting Stations, has provided the broadcast of the series, "The Constitution: That Delicate Balance," to enhance the awareness of educators on the U.S. Constitution. The series will be useful in inservicing for new social studies education requirements of the Regents Action Plan. (CE-31)

4.10 A pilot workshop on the use of video in schools is being developed by the Center for presentation in Summer 1986. A workshop manual will be published to enable replication of the workshop throughout the State. The workshop will address the needs of more than 5,000 teachers who are currently using video production as an instructional technique. (CLT-29)

4.11 A publication on the uses of stand-alone video programming, video production as a tool of instruction, and "distance learning" technologies is under development by the Center and will be distributed during the 1986-87 school year. Center staff are also coordinating the development of the Spring 1986 issue of the Journal of the School Administrators Association of New York State, which will focus on distance learning technologies. Both publications will provide important staff development and planning resources to New York State educators who wish to incorporate video within their programs. (CLT-28)

4.12 A Micros for Minis computer training program was developed cooperatively by the State Museum and the Center. The program, which is in its second year, represents a week-long series of computer workshops and museum activities for children 8 to 13 years of age. A Micros for Minis guidebook, which was published in Spring 1986, provides school districts with a model technology staff development program for replication at the district level. (CLT-23)

4.13 In support of the Technology Staff Development Program, the Center has developed a Software Library of nearly 1,000 programs donated by publishers. Teachers are invited on a monthly basis to preview the Center's Software Library. SED staff from the curriculum content areas are informed of new acquisitions on a monthly basis and are encouraged to preview the holdings of the Library. The estimated value of the Library is $100,000. (CLT-25)

4.14 The Center was awarded a grant from the National Council of States on Inservice Education to convene the first New York State Training Institute on the Use of Learning Technologies in the Schools. The Institute will provide New York State educators and professionals with the opportunity to learn about professional technology systems through hands-on lab experiences and expert presentations. The Institute is scheduled for Spring/Summer of 1986. (CLT-9)

4.15 The Bureau of Mathematics Education has developed a technology staff development publication, Teaching Mathematics With Computers, K-8, to assist teachers in integrating technology into their classrooms in order to utilize computers to get the maximum benefit for the maximum number of students. The publication will address planning, teacher training, hardware, software, and the teaching of mathematics with computers. (ESC-7)

4.16 The Bureau of Mathematics Education has developed a publication, Using Computers in the Secondary School, to give examples of how computers may be used to enhance student understanding of mathematics concepts and applications in secondary school mathematics curricula. Major concepts include: (a) the infusion of an ongoing component of computer

instruction within the high school curriculum; (b) the selection of courseware; (c) the development of a course in computer mathematics; (d) the development of a computer math course for a fifth year of mathematics to complete a five-year sequence in mathematics; and (e) a courseware objective matrix. (ESC-8)

4.17 The Office of Occupational and Continuing Education has developed syllabuses for 7th and 8th grade for the course entitled, "Introduction to Technology." During the summers of 1985 and 1986, forty technology teachers participated in an intensive Department-sponsored program to become teacher trainers. The trainers then provided inservice education to 800 technology teachers at twenty regional locations throughout the State. (ESC-10)

4.18 Nearly all of the 43 Boards of Cooperative Educational Services (BOCES) continued to offer during the 1985-86 school year computer-assisted instruction services to local school districts on a cooperative basis. These systems involve the use of minicomputers located at the BOCES with telecommunications lines going out to terminals located in the school districts. The systems offer school districts a wide range of courseware, management information on student performance, and computer-based guidance systems. (ESC-13)

4.19 The Bureau of Foreign Languages is working on a project, The Use of Computer Technology in Second Language Education, which will promote both the appropriate use of existing technology and the development of software that makes the best possible use of emerging technologies. A special objective of the project is the exploration of the addition of new, sophisticated computer peripheral equipment to existing computers for the production of authentic language samples as models and stimuli and for recording student responses. (ESC-15)

4.20 The Office of Occupational and Continuing Education is developing a new syllabus, Business Analysis/Business Computer Applications, which will be a requirement in most business and marketing high school sequences, and which can be used as an elective for all secondary high school students. The Office is providing a turnkey staff development workshop on delivery of the new curriculum in early June, 1986, for twenty designated teacher trainers who will then conduct five statewide inservice sessions for one hundred teacher applicants in August. The new course will be field-tested by the one hundred teachers during the 1986-1987 school year. They will also provide computer inservice to business teachers. (ESC-20)

LEGISLATION/POLICY

4.21 A Department policy was developed on September 6, 1984 on Management and Instructional Uses of Interactive Technology. This policy statement guides the provision of technology staff development for SED staff. The three components of the policy implementation are:

- Needs assessments were conducted by members of the Executive Staff. This was completed during 1985. The Office of the Executive Deputy Commissioner of Education developed procedures for obtaining this information. This was completed during 1985 by staff of Personnel and Labor Relations.

- It is the responsibility of the Division of Electronic Data Processing to provide necessary technical support services to office units using technology for management or business applications. It is the responsibility of the Center to provide inservice training and technical assistance to units using technology as part of their field responsibilities. Currently, the Center is coordinating with the Office of Personnel and Labor Relations to develop a systematic plan to provide technology staff development courses pending validation of the initial SED staff needs assessment data.

- The policy assures that SED staff members have demonstrated a minimum level of competency before equipment is purchased and installed.

GOAL ONE: EXCELLENCE

RECOMMENDATION 5

The Department will develop new alliances and expand current relationships with national, state, and regional organizations to share information about high quality learning technology opportunities and resources and will develop a long-range agenda of priority collaborative projects to be undertaken with these various organizations.

The Council of Chief State School Officers (CCSSO) and the Northeast Regional Exchange, Incorporated (NEREX) are representative examples of organizations with whom the Department has cooperated on technology initiatives.

ACTIVITIES

5.1 The State Education Department, through the Center for Learning Technologies, continues to coordinate with the National Council of Chief State School Officers on the National Technology Leadership Project, which was initially funded in 1983-84 by NIE and received a second year grant for the 1985-86 year. The Project represents the only major federal initiative that funds all state education agencies for the purpose of enhancing the use of the technologies across the states. The Director of the Center chairs the Steering Committee. The First National Technology Leadership Conference was hosted in Albany, New York in Summer 1984. The Second Conference was held in Portland, Oregon in February 1986.

Several potential multi-state efforts have developed as a result of the CCSSO 1986 National Conference that hold promise for New York efforts. Among them, efforts for cooperative state development of videodisc applications and a cooperative project with California to identify appropriate supporting technology and media applications for the math and science areas are of special interest. (CLT-10)

5.2 The Center for Learning Technologies has cooperated with the Northeast Regional Exchange, Inc., a consortium of New England State Education Agencies including the New York State Education Department, on the joint development and production of the Guide to Software Selection Resources. Grants were awarded by NEREX, Inc. in 1983-84 ($12,000) for the initial publication of the Guide, including a content-specific guide for Language Arts and Reading, in 1984-85 for Mathematics and Science ($12,000), and in 1985-86 for Second Languages ($8,000). (CLT-13)

5.3 The Center for Learning Technologies has participated in a national consortium comprised of 28 national computer education organizations, which annually develops the

Educational Software Preview Guide. This guide of favorably reviewed microcomputer K-12 educational software was cooperatively developed for 1984, 1985, and is currently under development for 1986. (CLT-16)

5.4 The State Education Department participates in the Statewide Learning Technologies Fair and consortium, which includes several New York State educational organizations, legislative offices, and field-based professional organizations. The Fair has been established as a means of bringing information on new and emerging technologies to a broad statewide constituency. The State Education Department had responsibility for the coordination of the program of the February, 1986 Learning Technologies Fair. (CE-36)

5.5 The Center for Learning Technologies coordinates with 43 BOCES Educational Communications Directors through the Educational Communications Directors Association, on planning several activities pertaining to the conducting of 4-6 statewide annual meetings and the identification of collaborative technology projects that require state level support. (CLT-36)

5.6 The State Education Department, through the Center for Learning Technologies and the Public Broadcasting Program, cooperates with the statewide network of nine New York State Public Broadcasting Stations, on fostering awareness among educators and the public of the rich resource of instructional television programming available over the network. Currently, a plan is being developed which will identify several collaborative projects between the Department and the Public Broadcasting Stations to assure that instructional television programming, comprising an investment of hundreds of millions of dollars, supports Regents priorities. (CE-27)

LEGISLATION/POLICY

5.7 As a follow-up to the May 1985 Regents approval of the Learning Technologies and Telecommunications Action Recommendations, the Center pursued initiatives to strengthen relationships with external organizations to achieve a consensus on specific policy and program directions related to the recommendations. Specifically, the Center convened a "Leadership Forum" at the suggestion of Commissioner Ambach and Executive Deputy Commissioner Maurer on October 3, 1985. The Forum was planned in cooperation with the New York State Council of Educational Associations. The Presidents (or designees) of 15 statewide educational organizations attended. Discussions yielded 10 major suggestions for cooperative learning technology activities and legislation that were worthy of pursuit on a statewide basis.

GOAL TWO: EQUITY. To ensure that technology, its applications, and instruction in its use within education are avilable to all on an equitable, nondiscriminatory, and nonsteretotyped basis.

RECOMMENDATION 6

The Department will focus learning technology and telecommunications efforts on institutions in need such as those school districts in the lowest ranking 10-15 percent on the Pupil Evaluation Program Tests in reading and mathematics, the preliminary competency test in reading, the Regents competency tests in reading, writing, and mathematics; and those with high drop-out rates. It will seek to apply technology for teaching adult basic skills in order to improve the ability of libraries, colleges and other institutions to serve the educational needs of low-income, minority or disadvantaged populations.

ACTIVITIES

6.1 The Public Broadcasting Program is coordinating with the New York State Public Television Stations to ensure that public television and radio are available to all New York State citizens and to enhance the equitable distribution and access of rich television and radio programming resources. The following have been undertaken to develop full state broadcasting coverage:

- Ongoing addition of television/radio translators.
- Replacement of old transmission antennas with new equipment to extend broadcast range.
- Greater availability of cable television.
- Addition of two radio stations by 1986.
- Planning of two additional public television stations for the North Country and Eastern Long Island.
- Establishment of a second video channel in the Buffalo region.

These necessary technical improvements will provide the capacity to broadcast programming equitably to all areas of the state which are not served currently. (CE-26)

6.2 The Center for Learning Technologies has investigated electronic mail, messaging, and voice messaging technologies because these technologies have the capacity to assure equitable access for all educational and cultural institutions to critical information on learning technologies issues and initiatives. The Center has assumed responsibility for establishing these capacities and is

conducting awareness and training sessions for Department staff and the field to foster the implementation of cost-effective telecommunications technologies for achieving educational equity and greater access to educational resources. (CLT-33)

6.3 The Center produces a monthly newsletter to ensure that vital information related to learning technology legislation, policy, projects, products, services, and programs is available to all New York State educational and cultural institutions. Approximately 18,000 issues of the CLT News are disseminated on a monthly basis. (CLT-34)

6.4 Several vital technology applications have been implemented within each of the 15 OVR District Offices to ensure that learning and telecommunications technologies are focused on constituencies in need. (OVR-3-17). Illustrations of some of these applications to increase access to vital information for disabled clients include:

- The introduction of a computerized vocational interest and values clarification tool for use and self-administration by clients.
- The provision of a computer data base of labor market information for clients.
- The use of the Microcomputer Evaluation and Screening Assessment (MESA) to provide an assessment of a client's skills, aptitudes, and interests.
- The use of a computer-based "job bank" to match MESA results to over 12,000 jobs listed in the Federal Department of Labor Dictionary of Occupational Titles to provide clients with a print-out of results, which, in turn, enables clients to determine what occupations best match a profile of skills.
- The provision of a computer software typing tutorial program to clients on a weekly basis who are seeking clerical positions and wish to improve their skills.
- The use of video production to record practice job interviews for clients to sharpen their interviewing skills.

6.5 The Office for the Education of Children with Handicapping Conditions and ESC Education Planning and Support Services are developing a computer program designed to assist educators in carrying out requirements mandated through Education Law and Part 200 Regulations of the

Commissioner. The employment of a computerized Part 200 Program will streamline the administration of these regulations which are intended to improve programs and services for students with handicapping conditions. The system was pilot tested at a selected BOCES during 1985-86. (ESC-5)

6.6 The Center produced on May 6, 1986, a teleconference on "Equity," which illustrated through location footage and panelist discussion with field constituencies, several model programs and practices that help to eliminate conflicts in schools. (CLT-32)

6.7 The Public Broadcasting Program has worked with the nine Public Television Stations to identify over 300 video programs which may be acquired without cost for statewide distribution. This will ensure equitable access to video resources on a statewide basis for all constituencies. Currently, 30 television programs have been acquired and are distributed through the Center for Learning Technologies. (CE-29)

6.8 A Statewide Film and Video Database and Cataloging Project has been undertaken by the 43 BOCES to enhance access for all constituencies to BOCES resources. The project involves the development of a union catalogue of film and video holdings of the 43 BOCES to provide a consistent flow of information to all constituencies and foster interagency sharing of resources. The Department serves a liaison role in this project. (CLT-37)

6.9 The Public Broadcasting Program is exploring with four public television stations the feasibility of broadcasting second-language video programming to non-English-dominant persons and to those interested in learning second languages. (CE-35)

6.10 OVR has implemented the Text-Trieve computer system to provide rapid access to a database of vocational rehabilitation policies and administrative services for professionals. The technology was deployed to enhance equitable dissemination of and access to vital rehabilitative services for clients. (OVR-2)

6.11 A broadcast teleconference was produced on "Adult Learning" on April 1, 1986. The employment of this vital telecommunication broadcast technology made it possible to significantly enhance public educator understanding of the problems of illiteracy; the high school equivalency program; and occupational education and job training. Center audience survey data indicate that a minimal audience of 50,000 persons were reached through the teleconference. (CLT-32)

6.12 A closed-circuit teleconference workshop has been conducted at the nine Public Television Stations to plan the use of public television to train adult literacy volunteers. Additional funding is being sought for the production of an open-circuit teleconference for professionals working in the area of adult education. (CE-32)

6.13 The Office for the Education of Children with Handicapping Conditions has developed a computer-based System to Track and Account for Children (STAC), which consists of procedures to be followed when requesting the Commissioner of Education's appointment, placement approval, or fiscal approval of the following programs: Deaf Infant Programs; State-operated/State-supported schools; district contracts with private schools; State contracts with private schools; Chapter 47, 66 and 721 Placements; high cost public programs; and other agency placements (Chapter 563 and 947). (ESC-9)

6.14 Computers and interactive video technologies are being explored to enhance the capacity of the State's Education Information Centers and improve access to information for adult learners. (HPE-16)

LEGISLATION/POLICY

6.15 A new legislative proposal, AL-1, a bill to authorize the development and implementation of an adult learning and job-specific training cable network pilot project, was submitted in the 1986 legislative package. This bill would provide funds for a pilot project to develop and implement an adult learning and job-specific training cable network serving the Buffalo area. The network would provide programming in general education basic skills as well as job specific skills.

The bill would also provide $500,000 for the installation of a transmission link from the State Education Department to a local public broadcasting station for transmission of the programs to the receiving cable network affiliates in the project area, and for funding to institutions specifically serving minorities and economically disadvantaged groups for the acquisition of cable network services. (CLT-4)

6.16 There are two new proposals submitted for the 1986 legislative cycle which have implications for using technologies for adult learning.

6.16.1 HP-18 would establish by competitive grant 150 centers to enable adults to make informed choices about further education. Some of these centers might wish to incorporate learning and telecommunications technology systems to enhance access to information and deliver services in a cost-effective, efficient manner. (HPE-16)

6.16.2 CE-8 would provide $600,000 to establish two pilot regional cultural educational networks to expand communications and expand non-credit adult education programs. It is likely that the pilot projects would explore the use of learning and telecommunications delivery systems to provide adult education learning.

GOAL TWO: EQUITY

RECOMMENDATION 7

The Department will work with hardware and software producers to address the development and introduction of computer peripherals and software that will enable the physically handicapped, the learning disabled, and the developmentally delayed learners of New York State to gain access to and effectively use learning technologies.

ACTIVITIES

7.1 Several technologies are currently deployed and activities initiated within the 15 OVR District Offices to provide enhanced learning and occupational opportunities for the disabled. Evaluative data on these projects, combined with survey data relating to technologies for the disabled collected by OVR through BOCES (reported under Recommendation 9), will be used by the Center for working with producers of developmental technologies for the disabled. (OVR-3-17). Illustrations include:

- A self tutorial signing program for finger spelling, which is currently available for staff and a specialist in deafness.
- A cooperative outreach program, undertaken with Corning Community College, to teach word processing and computer programming to homebound clients.
- The acquisition of computer software programs that can be used to facilitate cognitive retraining for brain injured persons and investigation of the application of the software program to learning disabled persons.
- Exploration of software relating to diagnosis and identification of learning limitations for a head injured client population.
- Exploration of Ability Information System (AIS) with the Central Diagnostic Evaluation Center of Upstate Medical Center.

7.2 The Center for Learning Technologies' Staff Development Program has developed a computer training curriculum for Microcomputers and Special Education. The course provides an opportunity for participants to observe a variety of devices which enable developmentally disabled people to communicate with the computer and their environment. Communications boards, speech synthesizers, speech recognition systems and light pens are demonstrated.

Since April 1985, the course has been provided to 50 special educators.

7.3 During 1985, the Center provided 11 two-day courses for 200 field-based professionals who work with the developmentally disabled. Funding for the project was awarded in 1984 under the New York State Developmental Disabilities Planning Council. The courses focused on the use of technology to enhance client learning and communications.

7.4 The Center for Learning Technologies developed a curriculum guide, Using Computers in the Education of the Developmentally Disabled: A Hands-on Guide. Topics include motor training games; language arts; and a tool kit disk.

7.5 Apple Computer, Inc., which selected the Center for Learning Technologies to serve as an Apple Scholarship Training Program staff development site and provided a consignment of an Apple microcomputer lab, announced at the January 1986 Apple World Conference that an Apple Office of Special Education had been created. The Center will maintain a liaison role with this Office to encourage the development of computer applications for students with special needs and adult rehabilitation computer applications. The Center will also coordinate with Apple to ensure that Apple's plans to develop an "existing" software/curriculum objective matrix of current and future software products produced for Apple reflects new Regents Action Plan curriculum goals for special education and OVR program goals.

7.6 The Center for Learning Technologies acquired consignments of software programs for special needs, speech synthesis programs on reading and thinking skills development, key ports, and several adaptive "switches" to permit the handicapped to access computer programs. This specialized hardware and software is being used in the Center's staff development program.

7.7 A video production, "A Path to Independence," was cooperatively developed by OVR and the Center for Learning Technologies. The program clarifies the role of OVR in assisting disabled clients prepare for, enter, and maintain employment. The program, videotaped at various locations throughout New York State, highlights training programs OVR has sponsored for clients with disabilities and presents interviews with clients at their job sites. (CLT-30)

7.8 Active promotion and dissemination of two Department teleconferences, "The Handicapped: School to Work" and "Educating the Handicapped," was undertaken through the Center's Media Distribution Network to ensure that all educational and cultural institutions have access to the information presented in these programs. This dissemination

initiative was directed at those institutions which did not receive the original broadcasts of the teleconferences.

7.9 The Center for Learning Technologies cooperated with the Office of Vocational Rehabilitation to produce two video productions on the preparation of resumes. The first program explained the basic formats and considerations in the preparation of a resume. The second presented a number of problem situations confronting individuals in the preparation of a resume. A third program, under development, will describe the services available from OVR. These projects illustrate the current application of video to maximize educational resources through learning technologies. (CLT-30)

7.10 A broadcast teleconference, "Vocational Rehabilitation," was produced on November 12, 1985, which described services and statewide programs. (CLT-32)

7.11 The Center for Learning Technologies produced a teleconference on March 4, 1986 on "Students with Handicapping Conditions." The use of a broadcast telecommunications system was an effective means of enhancing public and educator awareness of the capabilities of those with handicapping conditions. (CLT-32)

7.12 The New York State Library for the Blind and Visually Handicapped has introduced a computerized inventory control system to enhance access to public library type services for blind, visually and physically handicapped patrons in 55 upstate counties. (CE-10)

LEGISLATION/POLICY

7.13 The Center for Learning Technologies is coordinating with Deputy Commissioner Switzer, Office of Vocational Rehabilitation, and Assistant Deputy Commissioner Gloeckler, Office for the Education of Children with Handicapping Conditions, on the development of 1987 legislative proposals related to staff development for special educators and the acquisition of technologies for the disabled. The proposals will be developed by June 1986.

7.14 Governor Cuomo, in the January 8, 1986 State of the State Address, recommended the creation of a Center for Computing and Disability, drawing upon the resources of the State University at Albany (Nelson A. Rockefeller College of Public Affairs and Policy), Baruch College, and New York University, to undertake research, teaching, and outreach functions designed to facilitate the widespread use of computer technology by students and adults with disabilities. A $150,000 allocation was proposed. Staff of the newly formed Center for Computing and Disability have invited the Center for Learning Technologies, OVR, and the

Office for the Education of Children with Handicapping Conditions to serve a Department liaison role to the project to ensure that research, staff development, outreach efforts, and potential legislation complement and support Regents priorities and goals.

GOAL TWO: EQUITY

RECOMMENDATION 8

In order to increase access for all to training programs, including those programs that are curriculum-oriented and designed to end stereotyping and sex biases, the Department will work with appropriate field organizations in the development of appropriate staff development programs. This will also include the development of training models capable of replication throughout the State with a focus on institutions serving low-wealth or minority populations.

ACTIVITIES

8.1 The Center's Technologies Applications Planning Program (TAP), which was adopted and modified from a national "lighthouse" technology planning model, was piloted with nine school districts (Bedford Central, Oneida City Schools, Frontier Central, Port Chester Schools, Greenburgh Central School, Mt. Markham Central Schools, Liverpool Central Schools, Shenendehowa Central Schools, and Carthage Central Schools) in Fall 1985. The Center further refined the development of the TAP program by pilot testing with 8 additional school districts in February 1986. A third and final test is scheduled for June 1986. The TAP program is designed to provide schools with the principles of technology planning and to assist them in replicating that planning effort at the district level. Currently, the Center is coordinating with Merrimack Education Center of Chelmsford, Massachusetts, and MAGI on the further replication of the TAP staff development program at selected BOCES sites throughout the state. (CLT-26)

8.2 The Division of Museum Services Audio/Visual, Film and Video Production, Permanent and Temporary Exhibit Program has in-house film, audio/visual, and video production capabilities which are employed for the demonstration and teaching of processes, concepts, and locations not available within a static exhibit program. These productions, some of which are distributed by the State Museum to BOCES, school districts, postsecondary institutions, and cultural institutions, complement vital local staff development programs. (CE-24)

8.3 The Center for Learning Technologies Video Production Program produces in cooperation with numerous statewide and regional educational and cultural organizations several video programs which are designed for staff development purposes. Since May 1985, there have been 19 video programs produced. The total value of the grants awarded or funding provided to underwrite these productions is $122,875. Productions which have addressed staff development needs are:

8.3.1 A Changing World, a half-hour inservice videotape for foreign language teachers which was cooperatively produced by the Center and the New York State Association of Foreign Language Teachers to introduce the new foreign language curriculum. (CLT-30)

8.3.2 Two staff development video programs (10 min. /30 min.), which were produced to introduce science, mathematics, and language arts teachers to the Mimi series and to present staff development strategies for integrating the Mimi programs within the elementary school curriculum. (CLT-30)

8.3.3 The "Music" video series, which consists of several half-hour video programs jointly produced with the organizations representing the annual state conference on music education. The programs present the major elements of the new music curriculum. (CLT-30)

8.3.4 A half-hour staff development tape, entitled "Foreign Language," which was cooperatively produced with the New York State Foreign Language Association. The program exposes second language educators to techniques for the foreign language classroom. (CLT-30)

8.3.5 "Study Circles," a 45 minute staff development program on study circles as a mechanism for the presentation of child abuse and neglect, which was co-produced with the Bureau of Pupil Personnel Services. The video program will be used in statewide staff development workshops for training guidance personnel. (CLT-30)

8.4 The Center produces monthly hour-long teleconferences which are aired by all New York State public television stations. The broadcast teleconferences represent a major staff development capacity for delivering priority education issues and new mandates, programs and positions to New York State educators in a cost-effective manner. In addition, the Center disseminates each teleconference in video cassette format, which expands access to the staff development issues discussed in the teleconferences. The total funding of the production of seven teleconferences per year is $106,250. (CLT-32)

8.5 Radio and television public service announcements are regularly produced by the Center for Learning Technologies for broadcast by commercial stations across the state. Millions of dollars of air time have been donated and, thus, the announcements reach a large audience. Public service announcements illustrate an effective application of video technologies to provide professionals with important information which supports staff development programs. Since

May 1985, 14 PSAs were produced on several educational topics. (CLT-31)

8.6 The Computer Equity Staff Training pilot program, coordinated by the Division of Civil Rights and Intercultural Relations, was funded by a Title IV - Civil Rights Act sex desegregation grant to acquaint occupational education teachers with practical information about the inequities that exist in computer access and learning. The program provides strategies for promoting gender, race and ethnic equity in the use of computers and other technology for instructional purposes. Staff development, which began during Spring of 1986, will continue through the Fall of 1986. (ESC-18)

LEGISLATION/POLICY

8.7 A legislative proposal, ES-84, "Replication of the State Education Department's Center for Learning Technologies Computer Training Facility and Staff Development Program," was submitted in the 1986 legislative package. This bill would appropriate funds to provide a grant of three years duration to replicate in the Buffalo region the Center for Learning Technologies Computer Training and Staff Development Program. The program would provide high-quality technology staff development services to professional staff in educational and cultural institutions in that region which serve economically disadvantaged and minority populations. (CLT-4)

8.8 The Division of Civil Rights and Intercultural Relations works with the ESC Steering Committee to coordinate implementation of policies related to educational equity and the use of computers in the schools. The ESC Steering Committee's plan for the use of technology in education assures that technology and its applications in education are available to all students on a equitable and nondiscriminatory basis. (ESC-17)

8.9 A new proposal has been submitted for the 1986 legislative cycle, HP-20 which would provide $4.3 million to establish a science and technology entry program to increase participation and retention of minority and economically disadvantaged students in undergraduate and graduate programs leading to professional licensure and careers in scientific and technical fields. During 1985, the Legislature appropriated $500,000 for STEP grants to institutions of higher education to assist under-represented minority or economically-disadvantaged secondary school students acquire skills needed to take collegiate study in science and technology. 1,950 students were served by this program. (HPE-15)

GOAL TWO: EQUITY

RECOMMENDATION 9

In order to assess and monitor the efforts to achieve a more equitable distribution of learning technology and telecommunications capacity, the Department will:

- **Implement a planned agenda of survey research related to telecommunications, local video and computing capacities to determine needs and provide summary data reports to support the development of bias-free learning programs and to assess distribution of interactive learning resources.**

- **Immediately implement an annual data collection procedure to closely monitor the progress being achieved by the actions targeted on achieving equitable access and applications of the learning technologies and telecommunications capacities.**

ACTIVITIES

9.1 The Center for Learning Technologies, in cooperation with the Information Center on Education, has designed a "special survey" of the current and applied use of the learning technologies and telecommunications capacities within public and nonpublic elementary and secondary schools. The survey, and subsequent data analysis, specifically focuses on the equitable distribution and use of the technologies by public and nonpublic schools. The survey was conducted in Spring 1986 and a report will be provided to the Regents in the Summer of 1986. (CLT-43)

9.2 The Center for Learning Technologies has coordinated with the Office of Professional and Higher Education on the inclusion of several general questions related to learning technologies and telecommunications acquisition and use within the Spring 1986 Higher Education Master Plan Update Survey. The data is vital for identifying postsecondary institutions that have undertaken significant learning technologies initiatives. The survey results will be published for statewide dissemination. (CLT-43)

9.3 The Office of Vocational Rehabilitation's District Offices at Albany and Hauppauge have undertaken surveys of technology utilization by disabled clients.

9.3.1 The Albany District Office's survey of school districts and BOCES indicates that computers are used to increase student skill levels in specific areas, for remediation, or to assist resource room teachers by providing a daily printout that describes student progress in acquiring math, reading, and vocational skills. (OVR-3)

9.3.2 A comprehensive Hauppauge District Office survey of local school districts and BOCES indicates extensive use of computer assisted instruction for students classified as learning disabled. Several districts and BOCES are providing vocational evaluation and placement assistance to adults using computers. (OVR-8)

9.4 Data on public and nonpublic school district acquisition and use of learning technologies is gathered on a annual basis through the Department's Information Center on Education Basic Educational Data Systems (BEDS) data collection process. Data on the acquisition and use of the technologies has been gathered for the 1985-86 school year, and will be compared with data gathered during the 1984-85 school year. The survey focused upon the full range of technologies, including micro- and minicomputers, video cassette recorders, video production, telecommunications capacities, satellite dishes, video programming, technology staff development, and computer software. (CLT-39)

9.5 A special "phone survey" was conducted in the winter of 1985 with each of the 43 BOCES to identify the acquisition and use of several telecommunications capacities. Survey data was gathered on the following telecommunications technologies:

- Low Power Television and Instructional Television Fixed Services capacities
- FM Radio and Microwave Systems
- Satellite Reception Capabilities
- Community Access via Cable TV

Data gathered through this telecommunications survey as well as data on telecommunications from the annual BEDS survey, the special Technology Survey, and the Higher Education Master Plan Update Survey will comprise a foundation for developing policies and legislation for telecommunications and distance learning network implementation.

9.6 The Center for Learning Technologies has developed several data bases of information related to a variety of technology initiatives and programs. Surveys and data plans have been coordinated with the Department's Learning Technologies and Telecommunications Task Force, relevant program office steering committees (i.e., the ESC Technology Steering Committee), and the Information Center on Education. Since May 1985, the following technology information databases have been developed:

- Database on Special Legislative Grants (1985)
- Database on Co-Service Applications (BOCES) for Technology Programs
- Software Reviews Databank

The information is being used to formulate technology policy, regulations, and legislation. (CLT-39)

GOAL TWO: EQUITY

RECOMMENDATION 10

Arrangements for statewide volume price discounts for quality learning technology hardware and software will be undertaken by the Department to ensure that there is greater access for all of New York's citizens to these technologies.

ACTIVITIES

10.1 Several programs have been initiated with commercial producers of learning technology systems and programs that have resulted in (a) significant statewide price discounts and (b) grant award programs for which all New York State educational and cultural institutions may apply. (CLT-15) These statewide volume discount and grant programs include:

10.1.1 JAM, Inc., an interactive video disc company, provided an approximate 50 percent off the standard price of its program, Computer Literacy: An Introduction, for all educational and cultural institutions in the Spring of 1985.

10.1.2 CBS Educational and Professional Publishing, in cooperation with the Bank Street College of Education, provided a significant discount of 30 percent off the price of its integrated technology series, Voyage of the Mimi, for all New York State educational and cultural institutions in December 1985.

10.1.3 Apple Computer, Inc. committed to two new discount and grant award programs at the 1986 Apple World Conference. These included a "Discount Price 'Apple for the Teacher' Program," to promote teacher purchase of Apple Computers, and a "PC Trade-In Program." In addition, Apple is coordinating with the 60 national electronic publishers who attended the Apple Publishers Forum (June 18, 1985) to encourage them to "bundle" their programs into content-related software packages focused on the Regents Action Plan and to distribute them at a significant discount for educational and cultural institutions. The Center for Learning Technologies will continue to coordinate with Apple on these programs to ensure that they support Regents goals of excellence, equity, and efficiency.

10.2 A consortium of representatives of several educational and cultural organizations has been established for the purpose of developing a "model process" for statewide acquisition of software, film, and video programming. The consortium will enhance the capacity of the Department to negotiate rights for the dissemination of technology resources at a lower cost and will result in a more equitable

distribution of these technologies to all constituencies. (CLT-44)

10.3 The Center for Learning Technologies negotiated during 1985-86 with several producers of video programming to acquire <u>at no cost</u> rights to distribute quality programming for all educational and cultural institutions of the State. Twenty-three series, comprised of 125 video programs, have been acquired for statewide dissemination. These efforts have resulted in the acquisition of approximately $4.68 million of video programming for the current year.

10.4 The Department has continued to serve as a member of a consortium of states, in cooperation with the Agency for Instructional Technologies, for joint development of several television series and the acquisition of New York State rights for dissemination of the video programs. During 1985-86, 4 programs series in the areas of mathematics, language arts, health, and elementary education, comprised of 54 video programs, were acquired at a reduced cost which permitted enhanced dissemination of these quality instructional resources to all educational institutions.

LEGISLATION/POLICY

10.5 A 1986 legislative proposal, ES-83, has been proposed to provide an appropriation to the State Education Department of $500,000 for the acquisition of rights to quality video and computer software programming for statewide distribution to all educational and cultural institutions. (CLT-4)

GOAL TWO: EQUITY

RECOMMENDATION 11

To help ensure that there is full and equitable access to the technologies for all, the Department will recommend new or amended legislation for 1986-87 that (a) addresses enhanced access to the technologies (hardware, software, and telecommunication capacity) and (b) increases the ability to effectively apply them through provision of targeted staff development, planning, and technical assistance for low-wealth school districts, postsecondary institutions, and other educational and cultural institutions serving low-wealth and minority populations.

ACTIVITIES

11.1 The Center for Learning Technologies' Media Distribution Library and Publications Distribution are vital State Education Department capacities for providing technical assistance, planning, and staff development services for assisting educational and cultural institutions in the effective application of the learning technologies. The following efforts have been undertaken to expand and enrich the distribution of quality video programming and technology publications for targeted populations:

11.1.1 The Center's videotape library of more than 1,500 programs has been substantially increased by the addition of 125 new programs. Efforts to expand access to these programs, particularly for institutions serving low-wealth and minority populations, have been intensified by acquiring distribution rights for quality programming at reduced cost and by acquiring programming specifically targeted at the learning needs of low-wealth, minority, and special populations. Currently, the Center is distributing approximately 270 programs per month. More than 3,200 video programs were distributed through the Media Distribution Library since April 1985. (CLT-18)

11.1.2 The Center's Publication Distribution capacity has been expanded during the current year by the addition of new publications focused on technology planning, applications, and technical assistance. Four new publications, which include The Learning Technologies Planning Guide, Using Computers in the Education of the Developmentally Disabled: A Hands-On Guide, Micros for Minis: Guidebook for Integrating Cultural Experiences with Technology for Children Aged 8-13, and Technology Staff Development Program Catalogue, have been added to the catalogue of available publications. New updates were published for other Center publications, such as 1986 edition of Looking Through the Video Glass, a new second language component

for the Guide to Software Selection Resources, the expansion of MicroSIFT Courseware Evaluations by the addition of 150 new 1985-86 reviews, and a 1985 Educational Software Preview Guide. Approximately 9,000 Center publications have been distributed since April 1985. (CLT-27)

11.2 The Teacher Resource and Computer Training Center (TRCTC) program, which was expanded from a $3.5 to a $6 million appropriation during the 1985-1986 school fiscal year, is a primary statewide inservice network for providing staff development, planning, and technical assistance related to the technologies to school districts and BOCES. Currently, 57 TRCTCs have been funded through a competitive grant program. Inservice has been provided to more than 160,000 teachers. The Center for Learning Technologies, cooperating with the Division of Teacher Certification, reviews proposals, reviews and approves budget items associated with the learning technologies, and encourages the Centers to enhance efforts to provide effective staff development on the educational applications of learning technologies. The 1986 Executive Budget has recommended that an additional $10 million be appropriated for the TRCTC program for the 1986-1987 year. (HPE-14)

11.3 The Center for Learning Technologies is responsible for fiscal oversight and approval of the Special Legislative Grant programs that involve learning technologies and telecommunications projects. During the current fiscal year, more than $2 million has been allocated for technology-based Special Legislative Grants. Center staff have provided planning and technical assistance to these projects to ensure that grant allocations support effective implementation of the technologies and address Regents priority goals of excellence and equity. (CLT-41)

11.4 The Center for Learning Technologies developed a New York State Software Reviews Databank, in cooperation with the Technical Assistance Centers at the Broome-Delaware-Tioga BOCES and the New York City Board of Education, to provide a statewide, cost-effective resource for educators who are seeking to acquire quality computer software in support of educational curriculum and programs. The Databank, available on computer disk, and on microfiche, contains 1,500 reviews of over 1,000 programs. The Databank will provide schools serving low-wealth and minority students with information for acquiring appropriate software with funding available through the computer software aid program. (CLT-38)

LEGISLATION/POLICY

11.5 Currently, the State's poorest school districts have the least access to new technology systems to teach students. In order to enable low wealth school districts to

acquire learning technology systems and the staff development to make use of the systems, the Regents have recommended an additional aid component within the 1986 State Aid to School program targeted at low wealth school districts with concentrations of variously disadvantaged students as indicated by PEP tests. The projected total statewide allocation provided under this supplemental support aid provision is $3.87 million.

11.6 In recognition of the opportunities new and emerging technologies provide for local schools to creatively address instructional needs and, further, the need to provide local schools with equitable financial incentives to secure and apply these technologies within a framework of local governance and cost effectiveness, the **Regents Advisory Council on Learning Technologies recommended on April 15, 1986** that the New York State Education Department reassess the concept and current operating laws and regulations related to cooperative service aid. This reassessment should take into account the increased local ability to purchase and apply learning technologies while identifying those related services best provided within the context of shared services, such as needs assessment, staff development, curriculum integration, and maintenance.

The Regents goals of **excellence** of instructional programs, **equitable access** to the benefits technology can afford, and **effecient technological applications** should guide the cooperative services review. However, particular attention should be given to:

- Equitable financial incentives for both shared service technology applications and those locally viable technology applications not currently benefitting from cooperative service aid.
- Capacities and costs of future technologies.
- Optimal use of technologies.
- Flexibility for local determinations related to technology acquisition and application.
- Encouragement of maximum sharing through a number of multiple local district arrangements which allow for participation of postsecondary and cultural institutions.
- Support of innovative applications and elimination of policies that provide local financial **disincentives** for securing more advanced and efficient technologies. (CLT-42)

11.7 In recognition of the constraints of the Supreme Court decision ruling that Chapter I-funded public school teachers cannot render instructional services in nonpublic schools, the **Regents Advisory Council on Learning Technologies recommended on April 15, 1986** that the learning technologies in all their various forms be examined to determine if they provide a solution acceptable to the Federal regulations. In order to insure that adequate tests of technology solutions are conducted, the **Regents Advisory Council on Learning Technologies recommended** that funds be earmarked for such purposes and that these funds support a variety of alternative technological applications in order to determine their compliance with Federal guidelines and the viability of the instructional quality of the technologies. (CLT-42)

GOAL THREE: EFFICIENCY. To promote efficiency in the use of resources and greater effectiveness in general within educational and cultural systems through the implementation of appropriate learning and telecommunications technologies.

RECOMMENDATION 12

The Department will expand its capacity for identifying and transferring appropriate and promising technological developments and applications from the military, industrial, and non-profit sectors that have implications for enhancing the efficiency of New York's educational and cultural institutions. This will be accomplished via the identification of exemplary programs and the transfer of these and other emerging technologies and developments from other sectors.

ACTIVITIES

12.1 The Center for Learning Technologies has coordinated with staff of the United States Air Force and the Rome Air Development Center (RADC) to establish a framework for developing a military-to-civilian technology transfer program. Through the efforts of Regent Emlyn Griffith, Center staff explored technology transfer initiatives with the Chief of Institutional Research, Air University, and attended technology briefing sessions during Fall 1985 at Rome Air Development Center. Potential short-term transfer initiatives have been identified. Center staff also coordinated with Rome Air Development Center on the revision of the sections of the 1986 Federal Brochure that relate to military technology transfer. The Center has held discussions with staff of the Council of Chief State School Officers (CCSSO) to ensure that the initial efforts to establish a technology transfer mechanism with RADC are incorporated within the CCSSO as part of a national military transfer program. (CLT-12)

12.2 Elementary, Secondary and Continuing Education Planning and Support Services has developed an ESC Technology Programs Compendium, which contains approximately 100 New York State school district technology programs selected for their special design, effectiveness, and congruence with Department perspectives on the use of learning technologies within and across disciplines. The Compendium will be available in Spring, 1986. (ESC-6)

12.3 The Science Service Division has utilized computer-based technologies to develop automated catalogues of specimens to enhance efficient access and retrieval of information:

12.3.1 A SPIRES computer-based data management system has been used to develop a catalogue of zoological specimen information for rapid retrieval of information

and increased productivity in specimen processing through the use of codes and print specimen labels. (CE-16)

12.3.2 A computer-based catalogue of 3,100 Herbarium species has been translated into the language of the Quadex machine, which interfaces with the Department's printing plant, to allow for the instant generation of labels that reduce months of production time otherwise required by a nonautomated method. (CE-17)

12.4 The State Geological Survey has incorporated Apple computer technologies to develop a graphic and text data base system to create a Geological Bedrock Map of New York State. The technology will permit a person to visually locate an area of the state through computer peripherals and instantaneously access textual data related to the geological features of that area. (CE-11)

12.5 The Center for Learning Technologies has received permission from the Canadian Broadcasting System and the Federal Communications Commission to allow schools to use satellite dishes to receive, capture on videotape and disseminate the broadcast proceedings of the Canadian Parliamentary House of Commons. The proceedings will support Second Language and Social Studies K-12 curriculum. Rights on clearance for satellite reception of video programming is being investigated by the Center because it represents a cost-effective delivery system. The estimated value of this pilot effort, which was obtained without cost, is $150,000. (CLT-7)

12.6 Elementary, Secondary and Continuing Education Planning and Support Services has developed an ESC Technology Pilot project, which is designed to investigate and transfer all applications of computers and related telecommunications technology to office information and data processing needs. Applications have been developed for budget preparation, personnel records, project management, electronic assignment tracking, electronic file transfer, and electronic mail. (ESC-3)

12.7 The New York State Science and Technology Foundation's Industrial Innovation Extension Service, initiated with an appropriation of $500,000 in 1985-1986, will offer established industries in the State a variety of technical assistance and consultation services to assist companies in adopting new technologies for innovation purposes. It is expected that some of these capacities may have implications for assisting educational and cultural institutions to incorporate new technologies. A staff member of the Office of Postsecondary Policy Analysis serves as a Department liaison to this program. (HPE-6)

12.8 The Bureau of Academic Information and Reports has deployed computer technologies to develop a computerized record of all requests for academic program changes at colleges and professional schools, which allows for efficient and instant access of information for colleges asking about progress of their requests. (HPE-9)

12.9 The Division of Library Development has adopted microcomputer technologies to improve work flow and production within the Division. Word processors and data base management software have been used to achieve greater efficiency in State and Federal aid projections, manipulation of State and Federal aid program data and electronic communications. (CE-6)

12.10 The Bureau of ESC Education Planning and Support Services has developed the Educational Management Assistant Program (EMAP), which is a set of software for on-site school management applications processing. Data from EMAP will be electronically transmitted from school districts to BOCES Regional Computer Centers for State Education Department administrative data reporting. (ESC-12)

12.11 The Division of Museum Services has employed microcomputer technology to improve the management of budget, personnel information, and project monitoring. (CE-21, 22, 23)

12.12 The Regents College Degree Program developed twelve videotape testing modules for students in the nursing program. This videotape testing application has improved the efficiency of the testing process and consideration is now being given to ultimate conversion to interactive computer testing. (HPE-11)

12.13 Four clusters of Burroughs B-25 workstations have been installed within various program areas of the Office of Cultural Education and are being linked into a local area network to provide efficient and enhanced communications amongst professional and support staff. (CE-9)

12.14 The Bureau of School District Organization's project, "Disk Submission and Automation of BOCES Service Applications," began with a pilot test undertaken by six BOCES during 1985-1986. The cooperative planning effort of the six BOCES, the Office of Electronic Data Processing, and the Bureaus of Educational Finance, and Occupational Education have resulted in a more efficient submission of service applications on disk and greater coordination of the collection of BOCES information to meet the data needs of Department offices. A reformatting of data resident on the central database has resulted in the elimination of three submission documents and a reduction in the amount of data collected on two additional documents. (ESC-19)

LEGISLATION/POLICY

12.15 The Regents have recommended in the 1986 Federal brochure that the Federal government address three policy issues related to military technology transfer: first, development by DOD of a strategic plan for transferring technologies and support for the Technology Transfer Act of 1985 as an initial step in this effort; second, establish local or regional technology transfer centers; and, third, establish a national coordinating organization composed of education and military representatives to foster transfer. The Federal Lab Consortium for Technology Transfer may be used for this purpose, provided it is specifically charged with this activity.

12.16 There is a component of a 1986 legislative proposal, CE-1, which will provide increased state-aid to libraries to increase use of the technologies for resource sharing and efficient delivery of services.

12.17 The 1985-86 state aid allocation for the purchase of computer hardware by public schools was increased from $7.05 times a student aid ratio (1984-85) to $8.00 times a student aid ration. Governor Cuomo recommended in the Executive Budget that the 1986-87 allocation be maintained at the same level of funding. The total allocation for 1984-1987 would be $31.2 million for the purchase of instructional hardware, provided the Legislature approves the 1986-87 allocation recommended in the Executive Budget. (ESC-11)

12.18 The provision of special aid for public and nonpublic school district acquisition of computer software was expanded from $2.50 per child (1984-85) to $3.00 per child in the 1985-86 school year. The Executive Budget recommends that the $3.00 per child allocation be maintained for the 1986-87 school year. The total funds allocated for the 1984-1987 period would be $25.5 million. (ESC-16)

GOAL THREE: EFFICIENCY

RECOMMENDATION 13

Legislative regulations will be proposed to encourage private sector investment in learning technology products and services that directly benefit the educational and cultural programs of the State. The following principal activities will be considered:

- **The introduction of tax incentives to stimulate private sector investments and appropriate software and hardware development (including resources for research and development) and,**

- **The development of policy and procedures related to copyright protection of software and easily copied forms of media and materials used for research instruction or instructional-support purposes.**

LEGISLATION/POLICY

13.1 The Regents Advisory Council on Learning Technologies created a Copyright Subcommittee to address copyright policy issues at the September 23, 1985 meeting. The Subcommittee met on October 28, 1985 and developed a plan for the dissemination of information related to copyright to the field. The key documents will include: (a) a letter from Commissioner Ambach to Chief School Administrators of schools, BOCES, and postsecondary institutions informing them of copyright laws and encouraging them to circulate an enclosed background document to staff, and (b) a document consisting of a reprint of the Copyright Revision of 1976 (Public Law 94-553) and examples of "fair use" applications. In February 1986, this plan was reviewed with representatives from other State Educational Agencies at the Second National Technology Leadership Conference to ensure coordination with other SEA efforts. The final document will be reviewed by Office of Counsel. The document will be disseminated in Fall 1986. (CLT-5)

13.2 The Center for Learning Technologies cooperated with the Bureau of Economic Development Coordination on the Teacher Summer Business Training and Employment Program to solicit the support of learning technology industries to provide New York State teachers with advanced staff development experiences on developing technology projects. Nine corporate producers of learning technology systems invested in the program, which resulted in the employment of 34 teachers to work on advanced technology projects, such as hardware and software development for mathematics, science, computer science, occupational education, video production, computer networking, and the development of teaching guides.

GOAL THREE: EFFICIENCY

RECOMMENDATION 14

The State Education Department will seek additional legislative support for the provision of financial incentives to enable educators and other professionals to take advanced training and pursue project development activities related to the integration of the technologies for increasing overall efficiency within their respective fields. The types of training and inservice activities that need to be addressed should include, but not be limited to, the following:

- Advanced training and project development activities designed to support K-12 teachers and college faculty in the use of interactive program effectiveness.

- Orientation and training programs specifically designed to support enhanced instructional management requirements of the Regents Action Plan.

- Provision of advanced training for librarians, museum specialists, and media specialists in the use of technologies such as library automation, telecommunications, networking, video applications, for enhanced efficiency in the delivery of service.

- Provision of programs specifically designed to train the providers of instructional services to special needs populations (e.g., Handicapped, Vocational Rehabilitation, Corrections, Gifted) in the use of appropriate learning technologies to enhance the efficient delivery of learning experiences and educational/cultural resources to these groups.

ACTIVITIES

14.1 The Center for Learning Technologies has employed video production and broadcast teleconferencing technologies to enhance the awareness of New York State educators regarding issues of professional concern to teachers in two projects:

14.1.1 A half-hour video production, entitled Issues in Teaching, which described the process at the New York State Education Department Regional Conference on Strengthening Teaching held in Rochester, New York. (CLT-30)

14.1.2 A teleconference, Strengthening Teaching, which was broadcast on December 3, 1985, describing the process and issues which emerged at the statewide Regional Conferences focused on teaching. (CLT-32)

These productions will help to stimulate thought on the development of legislation for providing advanced training and staff development projects related to the technologies for educators in 1987.

14.2 Apple Computer, Corp. designated the Center for Learning Technologies to serve as a statewide computer training site for New York State teachers who receive Apple Scholarships.

(See Recommendation No. 4 for other related activities.)

LEGISLATION/POLICY

14.3 The Department has formulated a policy to guide the provision of technology staff development for SED professionals and support staff. The policy required the conducting of comprehensive needs assessments to identify the range of required computer management and instructional applications training programs needed by Department Program Offices, the provision of inservice courses by the Center for Learning Technologies and the Division of Electronic Data Processing, and the demonstration by SED staff of minimum level of competency on computer technologies before equipment is purchased. (See Recommendation No. 4 for a cross-reference)

GOAL THREE: EFFICIENCY

RECOMMENDATION 15

A comprehensive study must address current and planned telecommunications capacities and the implementation of a telecommunications network which might be used by all State agencies in a cost-sharing arrangement. Also, the Department will continue to pursue a close relationship with State and local telecommunications efforts to ensure high level, comprehensive state telecommunications study and planning.

ACTIVITIES

15.1 A national database in Ohio contains bibliographic citations of the holdings of over 5,000 libraries. The Office of Cultural Education via a telecommunication network has access to that database and to the bibliographical catalog information on virtually all of the publications produced in the United States. During this past year, the New York State Library increased its inventory by acquiring over 15,000 new volumes and cataloging an additional 20,000. Access to the national database greatly facilitates the cataloging of the new acquisitions. (CE-1)

15.2 Since July 1985, the New York State Library has been creating a national database which provides bibliographic and acquisition information on over 75,000 magazine and serial issues received at the New York State Library. This project also employs the use of a telecommunications network which lists the holdings of 200 libraries. (CE-2)

15.3 The Database Services Unit of the New York State Library has online access to over 300 databases covering a multidisciplinary range of topics related to research activities via a project entitled "Online Searching." By way of the New York State Interlibrary Loan system, employees of New York State agencies, public hospital and academic libraries, and the New York State legislature have access to computerized literature searches related to a wide variety of research activities. This past year over 90,000 searches were conducted. (CE-3)

15.4 The New York State Interlibrary Loan Network, under the auspices of the State Library and the Division of Library Development, supports and maintains its own computer-based telecommunications network linking the State Library with 49 authorized transmission sites and providing an interface with ten Regional Medical Library Network libraries across the state. This network, which provides access to over 30 million volumes and an equal number of microforms, handled 91,297 requests in 1984-85. (CE-4)

15.5 The purpose of the Division of Library Development's project, NYLINE, is to create a communications subnetwork within the National American Library Association's communications system ALANET to provide electronic mail capabilities to libraries and library systems in the State. NYLINE provides: (a) an electronic newsletter called NYNEWS; (b) an electronic bulletin board called NYBOARD; (c) access to the 1,200 electronic mailboxes of ALANET; (d) access to the electronic mailboxes of the OCLC 1-Mail System; (e) access to online order and claim forms for selected library suppliers; and, (f) use of a facility called Cross-Mail, which provides a telex-telegram interface. (CE-5)

15.6 The regional Bibliographic Data Bases and Interlibrary Resources Sharing project, in the second year of a five year program, has completed the conversion of approximately 37 percent of the 57 million records from a card catalogue system to a machine readable bibliographic data base. This project will improve and enhance resource sharing among the state libraries by helping users to find specific books in specific locations more readily through state and national data bases and communication systems. (CE-7)

15.7 The New York State Library's Collection Management System (CMS), which includes an online catalog, enhances access to the State Library's collections, expands catalog access, and eliminates manual filing of catalog information. CMS provides patrons, staff and nearly ninety field locations with the capability of searching the Library's automated catalog of nearly one million records through the online capacity. (CE-8)

15.8 In order to more effectively document and manage the archaeology collections of the New York State Museum, the Division of Historical and Anthropological Services is maintaining an online database. The most significant aspect of the collection management project is the entry of excavation and description information for several hundred thousand archaeological artifacts. Computer assisted entry and retrieval services provide basic catalog information and statistical profiles, and have been instrumental in completing the first comprehensive inventory of the ethnology collection in several decades. (CE-12)

15.9 The Division of Historical and Anthropological Services is upgrading the documentation and care of the history collections of the New York State Museum. The identical online database described above (15.8), which is maintained by the Voorhees Computing Center at RPI, has been used to enter catalog information for more than 20,000 records. Microcomputers are used as well to maintain secondary subfiles for ongoing loan and exhibit services. The future use of laser disks for even more enhanced accessibility is being planned. (CE-13)

15.10 The purpose of the Chartered Agency Project (CAP) is to form a comprehensive list and collect data on over 1,400 museum, historical societies and other cultural agencies incorporated by the New York State Board of Regents. This project, under the direction of the Division of Historical and Anthropological Services of the New York State Museum, conducted a survey in 1985 in which over 50 percent of the agencies responded with key data regarding operating budgets. Plans for 1986 will focus on collection management and the efficient allocation of human and monetary resources. (CE-14)

15.11 The State Archives completed a study and report on a proposed automated system for enhanced control of bibliographic and collection management information about records created by State government. In 1986, plans are to develop a comprehensive local system to augment the Archives access to a national research library database (RLIN). (CE-19)

15.12 The broadcast of several telecourses, including the award-winning The Brain, expands the Public Broadcasting Program's efforts to encourage the use of public broadcasting resources to make more postsecondary opportunities available to New York State citizens. In 1986, PBS will continue to move forward with its narrowcasting project which will supply instructional materials to public broadcasters, and will continue to package, through CPB/Annenberg and other producers, additional telecourses, some with interactive software. (CE-30)

15.13 Public Television's Video Library Project employs the downtime (middle of the night) broadcast capacity of public television stations to download instructional television programs for off-air taping by schools using programmable VCRs. The purpose of this initiative of the Public Broadcasting Program is to establish libraries of instructional video resources in individual schools and other educational and cultural institutions. (CE-34)

15.14 The use of Vertical Blanking Intervals (VBI) and the Subsidiary Communications Authorizations (SCA) is an important instrument in maximizing the full potential use of telecommunications in education. This project of the Public Broadcasting Program encourages all public television and radio stations in New York State to use VBI and SCA capacities for educational and public benefit. (CE-37)

15.15 The College Curriculum Information Service is a project of the Bureau of Academic Information and Reports which maintains a computerized file for internal use with the SED as well as other State agencies. Records of 17,000 programs in all degree granting and professional schools in

New York State are included in this file, which helps to provide a locator service to the public at college fairs and assists State agencies in administering and auditing state student financial aid programs. (HPE-8)

15.16 The purpose of the Teleconference Network Project is to economically and efficiently communicate relevant program related information nationwide to groups affiliated with the Regents College Degree nursing program. The goal of the project is to move beyond the existing services presently available, which include speaker phones at each Regional Performance Assessment Center and the RCD main office, to direct phone lines used exclusively for teleconferencing purposes and access to the AT&T Alliance Bridge System. (HPE-10)

15.17 Funded by the Xerox Corporation, the Regents College Information System has created a model for "electronic advising" which has tremendous implications for the future of the Regents College Degrees. By expanding access to the system, Xerox employees are able to enroll in and receive advisement for Regents College Degrees as well as register for Regents College Examinations on-line. (HPE-12)

15.18 The Investigative Management and Information System will allow the Office of Professional Discipline to have a greater availability of information for investigating and prosecuting disciplinary cases involving licensed professionals. Computer terminals located in the New York City headquarters and six regional investigative offices will provide up-to-date information on the status of current and past licensure and investigative activity, as well as allowing for closer supervision and more detailed analysis of a greater range of office activity. (HPE-13)

15.19 Technology Network Ties, of the Office of Elementary, Secondary and Continuing Education Planning and Support Services, is a pilot research and development project which would employ advanced telecommunications and database technology to develop powerful networking capabilities from the State Education Department to three field-based BOCES. This linkage is largely for administrative and instructional purposes, and would allow for immediate feedback on critical Department documents. (ESC-2)

15.20 The ARION 11 system, a project out of the Office of Vocational Rehabilitation, will provide rapid test scoring via a modem link to a central computer, thus helping to speed service to clients. These tests, whose scores have traditionally been marked by delays in service, are used by OVR counselors in the process of determining rehabilitation goals for OVR clients. (OVR-1)

15.21 The Office of Vocational Rehabilitation's Brooklyn office uses computers and other office technologies to facilitate rehabilitation of disabled clients. The ERA 11 MODEM program, which is connected with local high school computers, is used to maintain current information on jobs and disabilities with school bulletin boards, and to improve school relations as well. (OVR-6)

15.22 The OVR Malone District Office is exploring the use of telecommunications for management report writing and rehabilitation database access. The goal of this project is to enhance and strengthen the delivery of vocational rehabilitation services to disabled individuals by effectively utilizing learning technologies and telecommunications in both an administrative and direct client services capacity. (OVR-10)

15.23 The Center for Learning Technologies is tracking distance learning projects by creating up-to-date profiles on 25 different projects. Five are currently operating and twenty are in the planning mode. In addition to gathering information for policy development and legislation planning, the Center provides technical assistance in planning and implementation of distance learning networks to schools, BOCES and colleges. An effort to address distance learning on a statement basis is currently being developed with the District Superintendents.

15.24 The Cornell Supercomputer project, also known as NYSERNET, establishes a high speed computer network connecting New York State's research universities with each other and with other selected institutions. A NYSERNET steering committee was formed which developed by-laws for a corporation and an RFP to implement the network. A timetable for the two phase project has a July 1987 target date for completion.

LEGISLATION/POLICY

15.25 In preparation for the 1986 legislative year, the Center for Learning Technologies staff has held substantial discussions with the staff of the New York State Legislative Commission on Rural Resources. This on-going process, which began in December of 1985 and will continue until mid-1986, will consider the preparation of legislation which will provide allocations for local schools and BOCES to support planning, technical assistance and the operation of distance learning projects. To date, the Commission has introduced a bill (S8677/A10972) which provides for State management of current local activities and support for model course development for distance learning.

15.26 The Efficiency Study Grant program for 1985-86 school year funded twelve projects to study the implications of

distance learning networks. $140,000.00 was allocated for these twelve projects, which included the participation of 57 school districts and several BOCES. This program will continue to fund the studies of telecommunications and distance learning networks undertaken by school districts in the 1986-87 school year.

15.27 The Technology Network Ties (TNT) is a pilot telecommunications network which would link the State Education Department, regional BOCES and local school districts for administrative and instructional purposes. Legislation enacted during the 1986 legislative session expanded funding for a statewide computer-based support system for the management of schools as well as for improved information storage and transfer. This provision, which developed out of the TNT program for 1985-86 funded for $1.1 million, provides $3.5 million in 1986.

15.28 Legislation has been introduced which would create an Office of State Communications Management for the purpose of developing and managing a coordinated communications system for use by State agencies and local governments. This proposed legislation (05082-02-5) would provide a centralized approach to the acquisition and leasing of additional communications equipment at a greatly reduced cost.

15.29 Further legislation has been introduced (S7485) which will create a temporary State commission on educational telecommunications technology to prepare a plan for the adequate provision of educational technology programs for the State's elementary and secondary schools.

15.30 The Governor of New York State, as chairman for the Northeast Governor's Coalition, has proposed a regional state-of-the-art telecommunications system which would employ a fiber optics cable network placed along the Northeast's 4,489 mile interstate highway system. This fiber optic network is capable of carrying voice, data and video transmissions by laser beams through special glass fibers with enormous speed and clarity.

15.31 The Center for Learning Technologies managerial staff is involved with the telecommunications planning efforts of the Office of the Lieutenant Governor, which focused on the State's telecommunications infrastructure; the Office of General Services Telecommunications Task Force, which is exploring the possibility of establishing a state agency-wide telecommunications network and the NYSERNet Policy Committee, which is designing a supercomputer research network. In addition, the Center has provided research and background information on telecommunications capacities to the Legislative Commission on Expenditure Review, which is currently involved in the exploration of the telecommunications capacities intended for and managed by

State agencies. The Center has also provided technical assistance to the New York State Department of Tax and Finance for a complex computer-driven telephone communications system.

15.32 In recognition of the promise demonstrated by recent New York State efforts to apply a variety of distance learning technologies to enhance opportunities for learning and teaching and address specific requirements of the Regents Action Plan, postsecondary education, and for adult training and retraining and homebound instruction, **on April 15, 1986 the Regents Advisory Council on Learning Technologies recommended** that the Department include in the 1987-1988 Regents legislative package a proposal to support planning, technical assistance, and seed money for feasibility studies and/or project start-up. Distance learning requires very deliberate and comprehensive planning and, in many instances, a high degree of technical assistance. State funding support must insure that educational and cultural institutions (e.g., BOCES, public/nonpublic schools, postsecondary institutions, cultural institutions, independent learning centers and other vocational rehabilitation facilities) explore this application carefully and have the resources to secure adequate technical and curriculum development support. In addition to supporting traditional learning applications, the following must be taken into account: adult and continuing education, homebound instruction, and staff development. Also, a vital component of this legislative initiative must be the provision of adequate resources for the Education Department to oversee and manage the applications of distance learning technologies in New York State. (CLT-42)

IV. Second Year Directions

There will be continued pursuance of programs to address the fifteen original "Action Recommendations" approved by the Regents in May 1985. However, based on the experiences and knowledge gained during the first year, and the recommendations made by the Regents Advisory Council on Learning Technologies, particular emphasis will be placed on the following issues:

- **Strengthen the relationships among complementary Department initiatives**

  The **Status Report** and companion **"Compendium"** documents illustrate several initiatives of common thrust within two or more Department Program Offices. A priority activity for the Department's Learning Technologies and Telecommunications Task Force and the Regents Advisory Council on Learning Technologies will be to review these initiatives to achieve closer coordination and maximum impact on all educational and cultural constituencies to which the initiatives are addressed.

- **Strengthen programs and policies to address equitable access to and benefits from low wealth, minority and special populations**

  Though legislative proposals that address this directive were developed and approved as part of the `86 Regents Legislative Package, follow-up on those proposals and further development of programs targeted on the minority, adult, and disabled populations must be pursued.

  In addition, the results of the special survey of public/private elementary and secondary schools related to the availability and use of learning technologies, due to be available in Summer 1986, will inform more specific actions which must be pursued in the elementary and secondary arena.

- **Develop a comprehensive effort to improve integration of technologies in support of the curriculum areas**

  Consistent with the Regents Action Plan that indicates technology applications will be pursued as tools for instruction across all curriculum areas, current efforts to identify and disseminate exemplary applications will be continued.

  Recent efforts to explore cooperative efforts with California to (1) identify appropriate technology applications in the math/science areas, (2) develop tools for local school use in identifying such applications, and (3) develop appropriate teacher training programs, will be continued with the objective of refining a New York State program and defining a legislative initiative should that be indicated.

- **Develop a comprehensive effort to address telecommunications capacities to serve all of our educational and cultural institutions with particular attention to "distance learning"**

  Though many telecommunications initiatives are currently underway, there needs to be a deliberate effort to approach them in a more systematic way taking into account the current efforts/proposals of the Governor for a fiber optic network, the Cornell supercomputer project, the SUNY networking proposal, Technology Network Ties (TNT), library networking, expansion of public broadcasting, and other related efforts.

  Also, the expansion of distance learning efforts in the last year from three projects to nearly thirty statewide deserves attention to assure the highest technical and educational quality applications. The current effort to work with a subcommittee of the District Superintendents to review current New York State projects, observe models in other states, and recommend distance learning program and legislative directions will be continued by the Center for Learning Technologies with involvement of the Regents Advisory Council on Learning Technologies.

- **Review Current Education Policy and Legislation to ascertain the need for revision to improve the appropriate application of technologies**

  Many of the current program and fiscal policies and laws were developed long before the advent of sophisticated computing, telecommunications, and instructional video capacities. In some cases, these current policies/laws require updating to take into account the implications of the new technologies as applied to the educational and cultural programs.

  The work of the Regents Advisory Council on Learning Technologies with the Center for Learning Technologies which was commenced on April 15, 1986 will continue and focus on:

  - Financial aid incentives for educational and cultural institutions to procure and apply technology.
  - Teacher preparation requirements.
  - The implications of distance learning.
  - Public/private cooperation.

APPENDIX

STATE EDUCATION DEPARTMENT CONTACT PERSONS

Technology Activities

Office of Cultural Education (CE)

CE 1	OCLC ACQUISITIONS AND CATALOGING	William DeAlleaume NY State Library Cultural Education Center 6th Floor Albany, NY 12230 (518) 474-5946
CE 2	LINX (SERIAL CONTROL SYSTEM)	William DeAlleaume NY State Library Cultural Education Center 6th Floor Albany, NY 12230 (518) 474-5946
CE 3	ONLINE SEARCHING	Soumaya Baaklini NY State Library Database Service Unit Cultural Education Center 6th Floor Albany, NY 12230 (518) 474-3232
CE 4	NEW YORK STATE INTERLIBRARY LOAN NETWORK (NYSILL)	Van Judd NY State Library Cultural Education Center 6th Floor Albany, NY 12230 (518) 474-5955
CE 5	NYLINE PROJECT	Carol Ann Desch Div. of Library Developmt. Cultural Education Center Room 10B41 Albany, NY 12230 (518) 474-7890
CE 6	USE OF MICROCOMPUTERS	Roberta Cade Div. of Library Developmt. Cultural Education Center Room 10C50 Albany, NY 12230 (518) 474-7196

Office of Cultural Education (CE) (continued)

CE 7	REGIONAL BIBLIOGRAPHIC DATABASES AND INTERLIBRARY RESOURCE SHARING	George Messmer Library Development Cultural Education Center Room 10B41 Albany, NY 12230 (518) 474-7890
CE 8	COLLECTION MANAGEMENT SYSTEM (CMS INCLUDES ONLINE CATALOG)	J. Van Der Veer Judd NY State Library Cultural Education Center 6th Floor Albany, NY 12230 (518) 474-5955
CE 9	OFFICE AUTOMATION	Dahlia Mazengia Cultural Education Center Room 10A33 Albany, NY 12230 (518) 474-5223
CE10	LIBRARY FOR THE BLIND AND VISUALLY HANDICAPPED	Jane Somers Cultural Education Center Basement Albany, NY 12230 (518) 474-5935
CE11	ELECTRONIC BEDROCK MAP OF NEW YORK STATE	James R. Albanese State Geological Survey Cultural Education Center Room 3136 Albany, NY 12230 (518) 474-7934
CE12	COLLECTIONS MANAGEMENT	Paul Scudiere NY State Museum Cultural Education Center Room 3099 Albany, NY 12230 (518) 473-1299
CE13	COLLECTIONS MANAGEMENT	Paul Scudiere NY State Museum Cultural Education Center Room 3099 Albany, NY 12230 (518) 473-1299

Office of Cultural Education (CE) (continued)

CE14	CHARTERED AGENCY PROJECT (CAP)	Joseph F. Meany, Jr. NY State Museum Cultural Education Center Room 3099 Albany, NY 12230 (518) 474-5375
CE15	EVALUATING LAKE WATER QUALITY USING THE NUMERICAL MODEL	Dr. Carole D. Collins Science Serv./State Museum Cultural Education Center Room 3132 Albany, NY 12230 (518) 474-5800
CE16	CATALOG OF ZOOLOGICAL SPECIMENS	Robert A. Daniels Science Service Cultural Education Center Room 3132 Albany, NY 12230 (518) 474-5800
CE17	COMPUTER-LABELLED HERBARIUM FOLDERS	Dr. Richard Mitchell Science Service Cultural Education Center Room 3144 Albany, NY 12230 (518) 474-5809 Dr. Charles Sheviak Cultural Education Center Room 3144 Albany, NY 1230 (518) 474-5809
CE18	A USEABLE PAST: THE NEW YORK STATE ARCHIVES	Richard Andress State Archives Cultural Education Center Room 10A46 Albany, NY 12230 (518) 474-1195
CE19	ARCHIVES AUTOMATION PROJECT	Thomas Mills State Archives Cultural Education Center Room 10A46 Albany, NY 12230 (518) 474-1195

Office of Cultural Education (CE) (continued)

CE20	SPECIAL MEDIA RECORDS SURVEY & PLANNING PROJECT	Margaret Hedstrom State Archives Cultural Education Center Room 10A46 Albany, NY 12230 (518) 474-1195
CE21	PROJECT MANAGEMENT	Dale Fanning Div. of Museum Services 60 Commerce Avenue Albany, NY 12206 (518) 457-4178
CE22	PERSONNEL MANAGEMENT	Dale Fanning Div. of Museum Services 60 Commerce Avenue Albany, NY 12206 (518) 457-4178
CE23	BUDGET AND INFORMATION	Dale Fanning Div. of Museum Services 60 Commerce Avenue Albany, NY 12206 (518) 457-4178
CE24	A/V, FILM/TV PRODUCTION: PERM. AND TEMP. EXHIBIT PROGRAM	Keith Metzler, Chief Div. of Museum Services 60 Commerce Avenue Albany, NY 12206 (518) 457-2368 Charles L. Munson Museum Exhibit Spec. 60 Commerce Avenue Albany, NY 12206 (518) 457-2938
CE25	MUSEUM AUDIO/VISUAL SUPPORT GROUP	Keith Metzler, Chief Div. of Museum Services 60 Commerce Avenue Albany, NY 12206 (518) 457-2368 Edward Brown Sr. Museum Exhibit Spec. A/V Support, NYS Museum Albany, NY 12230 (518) 473-1787

Office of Cultural Education (CE) (continued)

CE26	FULL ACCESS TO PUBLIC TELEVISION AND RADIO	William Halligan Public Broad. Program Cultural Education Center Room 10A75 Albany, NY 12230 (518) 474-5862
CE27	VIDEO PROGRAMMING ACQUISITION	William Halligan Public Broad. Program Cultural Education Center Room 10A75 Albany, NY 12230 (518) 474-5862
		Charles C. DeVoe Center for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CE28	NEW YORK STATE CURRICULUM MATRIX	William Halligan Public Broad. Program Cultural Education Center Room 10A75 Albany, NY 12230 (518) 474-5862
CE29	NEW YORK NETWORK PROGRAM RESOURCES	William Halligan Public Broad. Program Cultural Education Center Room 10A75 Albany, NY 12230 (518) 474-5862
CE30	TELECOURSES FOR POST-SECONDARY EDUCATION	William Halligan Public Broad. Program Cultural Education Center Room 10A75 Albany, NY 12230 (518) 474-5862
CE31	BICENTENNIAL OF THE U.S. CONSTITUTION	William Halligan Public Broad. Program Cultural Education Center Room 10A75 Albany, NY 12230 (518) 474-5862

Office of Cultural Education (CE) (continued)

CE32	ADULT LITERACY PROJECT	Barbara Flynn Office of Higher Educ. Cultural Education Center Room 5D28 Albany, NY 12230 (518) 474-5851
CE33	ADMINISTRATION OF PUBLIC RADIO AND TELEVISION	William Halligan Public Broad. Program Cultural Education Center Room 10A75 Albany, NY 12230 (518) 474-5823
CE34	PUBLIC TELEVISION "VIDEO LIBRARY PROJECT"	William Halligan Public Broad. Program Cultural Education Center Room 10A75 Albany, NY 12230 (518) 474-5823
CE35	SECOND LANGUAGE AND MULTI-NATIONAL UNDERSTANDING	William Halligan Public Broad. Program Cultural Education Center Room 10A75 Albany, NY 12230 (518) 474-5823
CE36	LEARNING TECHNOLOGIES FAIR	William Halligan Public Broad. Program Cultural Education Center Room 10A75 Albany, NY 12230 (518) 474-5823
CE37	NEW DATA COMMUNICATIONS TECHNOLOGIES	William Halligan Public Broad. Program Cultural Education Center Room 10A75 Albany, NY 12230 (518) 474-5823
CE38	STATEWIDE HISTORICAL DOCUMENTS INVENTORY (HDI)	Larry J. Hackman State Archives Cultural Education Center Room 10A46 Albany, NY 1230 (518) 474-1195

Office of Higher and Professional Education (HPE)

HPE 1	CENTERS FOR ADVANCED TECHNOLOGY	Celia Diamond (Dept. Liaison) Bur. of Postsec. Plann. Cultural Education Center Room 5B44 Albany, NY 12230 (518) 474-7416
HPE 2	RESEARCH AND DEVELOPMENT GRANTS (R & D GRANTS)	Celia Diamond (Dept. Liaison) Bur. of Postsec. Plann. Cultural Education Center Room 5B44 Albany, NY 12230 (518) 474-7416
HPE 3	SUPER COMPUTING PROGRAM -- CORNELL UNIVERSITY	Celia Diamond (Dept. Liaison) Bur. of Postsec. Plann. Cultural Education Center Room 5B44 Albany, NY 12230 (518) 474-7416
HPE 4	REGIONAL TECHNOLOGY DEVELOPMENT ORGANIZATIONS (TDO's)	Celia Diamond (Dept. Liaison) Bur. of Postsec. Plann. Cultural Education Center Room 5B44 Albany, NY 12230 (518) 474-7416
HPE 5	PRODUCTIVITY DEVELOPMENT PROGRAM (PDP)	Celia Diamond (Dept. Liaison) Bur. of Postsec. Plann. Cultural Education Center Room 5B44 Albany, NY 12230 (518) 474-7416
HPE 6	INDUSTRIAL INNOVATION EXTENSION SERVICE	Celia Diamond (Dept. Liaison) Bur. of Postsec. Plann. Cultural Education Center Room 5B44 Albany, NY 12230 (518) 474-7416

Office of Higher and Professional Education (HPE) (Continued)

HPE 7 CORNELL SUPERCOMPUTER - NYSERNET	Celia Diamond (Dept. Liaison) Bur. of Postsec. Plann. Cultural Education Center Room 5B44 Albany, NY 12230 (518) 474-7416
HPE 8 CCIS - COLLEGE CURRICULUM INFORMATION SERVICE	Joanne B. Collins Bur. of Acad. Info & Repts Cultural Education Center Room 5B35 Albany, NY 12230 (518) 473-1215
HPE 9 PREREG - PREREGISTRATION LOG	Joanne B. Collins Bur. of Acad. Info & Repts Cultural Education Center Room 5B35 Albany, NY 12230 (518) 473-1215
HPE10 TELECONFERENCE NETWORK PROJECT	Karen Fagen Regents College Degrees Cultural Education Center Room 5D45 Albany, NY 12230 (518) 473-8957
HPE11 PROFESSIONAL PERFORMANCE EXAMINATION	Carrie B. Lenburg Regents College Degrees Cultural Education Center Room 5D45 Albany, NY 12230 (518) 473-8957
HPE12 RCIS - REGENTS COLLEGE INFORMATION SYSTEM	Linda Headley-Walker Regents College Degrees Cultural Education Center Room 5D45 Albany, NY 12230 (518) 474-3703
HPE13 IMIS - INVESTIGATIONS MANAGEMENT AND INFORMATION SYSTEM	Harold Tobman Office of Prof. Discipline 622 Third Avenue 37th Floor New York, NY 10017 (212) 557-2132

Office of Higher and Professional Education (HPE) (Continued)

HPE14	TEACHER RESOURCE AND COMPUTER TRAINING CENTERS	Helen Hartle Div. of Teacher Cert. Cultural Education Center Albany, NY 12230 (518) 474-6440
HPE15	SCIENCE AND TECHNOLOGY ENTRY PROGRAMS (STEP)	Arthur L. Walton, Jr. Off. of the Professions Cultural Education Center Room 3029 Albany, NY 12230 (518) 474-3863
HPE16	EDUCATION INFORMATION CENTERS (EICs)	Barbara W. Flynn Off. of the Deputy Comm. for Higher & Prof. Educ. Cultural Education Center Room 5B28 Albany, NY 122330 (518) 474-5851
HPE17	ACQUISITION OF RESEARCH EQUIPMENT	Thomas A. Flood Bur. of Postsec. Finance & Facilities Studies Cultural Education Center Room 5B82 Albany, NY 12230 (518) 474-3701

Office of Vocational Rehabilitation (OVR)

OVR 1	ARION II	Margaret Albanese & John Cebula Off. of Voc. Rehab. 1 Commerce Plaza Albany, NY 12234 (518) 474-7982 and (518) 474-5587
OVR 2	TEXT-TRIEVE	Richard J. Strohl Off. of Voc. Rehab. 1 Commerce Plaza Room 1936 Albany, NY 12234 (518) 474-3324

Office of Vocational Rehabilitation (OVR) (Continued)

OVR 3 LEARNING TECHNOLOGIES - ALBANY DISTRICT OFFICE	Thomas Paduano Dist. Office Manager 55 Elk Street Room 301 Albany, NY 12207 (518) 473-8097
OVR 4 LEARNING TECHNOLOGIES - BINGHAMTON/ELMIRA SATELLITE OFFICE	Richard Andres Dist. Office Manager 92 Hawley Street Binghamton, NY 13901 (518) 773-7830
OVR 5 LEARNING TECHNOLOGIES - BRONX DISTRICT OFFICE	Edith Nathan Dist. Office Manager 1500 Pelham Parkwy. So. 1st Floor Bronx, NY 10461
OVR 6 LEARNING TECHNOLOGIES - BROOKLYN DISTRICT OFFICE	Dana Mitchell Dist. Office Manager 111 Livingston Street 23rd Floor Brooklyn, NY 11201 (718) 834-6550
OVR 7 LEARNING TECHNOLOGIES - BUFFALO DISTRICT OFFICE	Duane Reggentine Dist. Office Manager Gen. William J. Donovan State Office Bldg 8th Fl., 125 Main St. Buffalo, NY 14203 (716) 847-3294
OVR 8 LEARNING TECHNOLOGIES - HAUPPAUGE DISTRICT OFFICE	Jerold Donowitz Dist. Office Manager State Office Building Veterans Highway Hauppauge, NY 11788 (516) 360-6357
OVR 9 LEARNING TECHNOLOGIES - HEMPSTEAD DISTRICT OFFICE	Leo Schechter Dist. Office Manager 50 Clinton Street Room 708 Hempstead, NY 11550 (516) 483-6510

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Office of Vocational Rehabilitation (OVR) (Continued)

OVR10 LEARNING TECHNOLOGIES - MALONE DISTRICT OFFICE	John Ray Dist. Office Manager East Main Street Road 1st Floor Malone, NY 12953 (518) 483-3530
OVR11 LEARNING TECHNOLOGIES - MANHATTAN DISTRICT OFFICE	John Bertrand Dist. Office Manager 116 West 32nd Street 6th Floor New York, NY 10001 (212) 563-6400
OVR12 LEARNING TECHNOLOGIES - POUGHKEEPSIE DISTRICT OFFICE	Harriet Fein Dist. Office Manager 120 Dutchess Turnpike Canterbury Plaza, 1st Fl. Poughkeepsie, NY 12603 (914) 452-5325
OVR13 LEARNING TECHNOLOGIES - QUEENS DISTRICT OFFICE	Carol Stein Dist. Office Manager 1 LeFrak City Plaza 59-17 Junction Blvd. 20th Floor Corona, NY 11368 (718) 271-9346
OVR14 LEARNING TECHNOLOGIES - ROCHESTER DISTRICT OFFICE	Paul Pfrommer Dist. Office Manager 109 South Union Street Rochester, NY 14607 (716) 325-5990
OVR15 LEARNING TECHNOLOGIES - SYRACUSE DISTRICT OFFICE	Marvin Reed Dist. Office Manger State Office Building Room 230 333 East Washington St. Syracuse, NY 13202 (315) 428-4179
OVR16 LEARNING TECHNOLOGIES - UTICA DISTRICT OFFICE	Emile Truchon Dist. Office Manager State Office Building 207 Genesee Street Utica, NY 13501 (315) 793-2536

Office of Vocational Rehabilitation (OVR) (Continued)

OVR17 LEARNING TECHNOLOGIES - WHITE PLAINS DISTRICT OFFICE	Sandra Countee Dist. Office Manager 55 Church Street 3rd Floor White Plains, NY 10601 (914) 946-1313

Office of Elementary, Secondary and Continuing Education (ESC)

ESC 1 MODEL SCHOOLS TECHNOLOGY PROJECT	Dr. Paul Regnier NYS Education Dept. Education Building Annex Room 860 Albany, NY 12234 (518) 474-2380
ESC 2 TECHNOLOGY NETWORK TIES (TNT)	Dr. Michael S. Radlick Off. of ESC Educ. Plan. Education Building Annex Room 869 Albany, NY 12234 (518) 473-9106
ESC 3 ESC TECHNOLOGY PILOT	Ms. Shirley Williams NYS Education Dept. Education Building Annex Room 865 Albany, NY 12234 (518) 474-2380
ESC 4 ADROIT PROJECT	Dr. Steven J. Kidder NYS Education Dept. Education Building Annex Room 860 Albany, NY 12234 (518) 474-2380
ESC 5 PART 200 MANAGEMENT SYSTEM	Fred DeMay NYS Education Dept. Education Building Annex Room 1069 Albany, NY 12234 (518) 474-8917
ESC 6 ESC TECHNOLOGY PROGRAMS COMPENDIUM	Dr. Steven J. Kidder NYS Education Dept. Education Building Annex Room 860 Albany, NY 12234 (518) 474-2380

Office of Elementary, Secondary and Continuing Education (ESC) (Con't)

ESC 7 TEACHING MATHEMATICS WITH COMPUTERS, K-8	Mr. Benjamin Lindeman Bur. of Mathematics Educ. Education Building Room 306 Albany, NY 12234 (518) 474-5931
ESC 8 USING COMPUTERS IN THE SECONDARY SCHOOL	Mr. Benjamin Lindeman Bur. of Mathematics Educ. Education Building Room 306 Albany, NY 12234 (518) 474-5931
ESC 9 SYSTEM TO TRACK AND ACCOUNT FOR CHILDREN (STAC)	Bob Scalise Coordinator 1 Commerce Plaza Room 1603 Albany, NY 12234 (518) 474-7116
ESC10 INTRODUCTION TO TECHNOLOGY - GRADES 7 & 8	John M. Fabozzi NYS Education Dept. 1 Commerce Plaza Room 1619 Albany, NY 12234 (518) 474-3954
ESC11 COMPUTER INSTRUCTIONAL HARDWARE AID	Mr. Eugene Smith State Aid (Fin. Requests) Education Building Annex Room 967 Albany, NY 12234 (518) 474-4977
ESC12 EDUCATIONAL MANAGEMENT ASSISTANT PROGRAM (EMAP)	Dr. Michael Radlick Off. of ESC Educ. Plann. Education Building Annex Room 869 Albany, NY 12234 (518) 473-9106
ESC13 COMPUTER ASSISTED INSTRUCTION - STATEWIDE	Dr. Steven J. Kidder NYS Education Dept. Education Building Annex Room 860 Albany, NY 12234 (518) 474-2380

Office of Elementary, Secondary and Continuing Education (ESC) (Con't)

ESC14	EFFICIENCY STUDY GRANTS	Mr. Kenneth Rowe Bur. of Sch. Dist. Organ. Education Building Annex Room 671 Albany, NY 12234 (518) 474-3936
ESC15	THE USE OF COMPUTER TECHNOLOGY IN SECOND LANGUAGE EDUCATION	Mr. Alain Blanchet Bur. of Foreign Lang. Education Building Room 323 Albany, NY 12234 (518) 474-5927
ESC16	COMPUTER INSTRUCTIONAL SOFTWARE AID	Mr. Charles Drago, Jr. NYS Education Dept. Education Building Annex Room 969 Albany, NY 12234 (518) 474-2977
ESC17	IMPROVING COMPUTER EQUITY IN THE SCHOOLS	Dr. Karl S. Wittman Div. of Civ. Rights & Intercultural Relations Education Building Annex Room 471 Albany, NY 12234 (518) 474-0585
ESC18	COMPUTER EQUITY STAFF TRAINING	Michael J. Moon Div. of Civ. Rights & Intercultural Relations Education Building Annex Room 469 Albany, NY 12234 (518) 474-3934 Dr. Karl S. Wittman Div. of Civ. Rights & Intercultural Relations Education Building Annex Room 471 Albany, NY 12234 (518) 474-0585
ESC19	DISK SUBMISSION AND AUTOMATION OF BOCES SERVICES APPLICATIONS	Nancy Anderson Bur. Sch. Dist Organ. Education Building Annex Room 671 Albany, NY 12234 (518) 439-2875

Office of Elementary, Secondary and Continuing Education (ESC) (Con't)

ESC20	BUSINESS ANALYSIS/BUSINESS COMPUTER APPLICATIONS	Millie Frandino NYS Education Dept. 1 Commerce Plaza Room 1615 Albany, NY 12234 (518) 474-6240

Office of the Executive Deputy Commissioner of Education (CLT)

CLT 1	SED LEARNING TECHNOLOGIES AND TELECOMMUNICATIONS TASK FORCE	Gregory M. Benson, Jr. Director Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT 2	OFFICE AUTOMATION PILOT PROJECT	Gregory M. Benson, Jr. Director Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT 3	CLT INTERNSHIP PROGRAM	Peter F. Stoll Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT 4	1986 LEGISLATION FOR LEARNING TECHNOLOGIES/TELE-COMMUNICATIONS	Peter F. Stoll Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT 5	COPYRIGHT POLICY STATEMENT	Peter F. Stoll Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823

CLT 6	DISTANCE LEARNING PROJECT MONITORING	Peter F. Stoll Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT 7	CANADIAN BROADCAST CORPORATION - SATELLITE RECEPTION	Peter F. Stoll Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT 8	A STUDY ON STATE EDUCATION AGENCY POLICIES ON TECHNOLOGIES	Gregory M. Benson, Jr. Director Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT 9	STATE LEADERSHIP INSTITUTE ON THE USE OF LEARNING TECHNOLOGIES	Peter F. Stoll Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823 Vince Gazzetta Director Div. of Teach. Cert. Cultural Education Center Room 5A11 Albany, NY 12230 (518) 474-6440
CLT10	NATIONAL TECHNOLOGY LEADERSHIP PROJECT (NTLP)	Gregory M. Benson, Jr. Director Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT11	COMPUTER CONFERENCING NETWORKS FOR NEW YORK STATE EDUCATORS	Peter F. Stoll Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823

Office of the Executive Deputy Commissioner of Education (CLT) (Con't)

CLT12	MILITARY TECHNOLOGY TRANSFER PROJECT	Peter F. Stoll Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT13	GUIDE TO SOFTWARE SELECTION RESOURCES FOR FOREIGN LANGUAGE	Peter F. Stoll Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT14	TELELEARNING COURSES FOR THE THIRD WORLD AND CARIBBEAN NATIONS	Peter F. Stoll Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT15	PUBLIC-PRIVATE TECHNOLOGY PARTNERSHIPS	Peter F. Stoll Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT16	THE 1985 EDUCATIONAL SOFTWARE PREVIEW GUIDE	William H. Humphrey Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT17	STAFF DEVELOPMENT - CLT INSTITUTES	William H. Humphrey Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT18	CLT MEDIA DISTRIBUTION LIBRARY	William H. Humphrey Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823

Office of the Executive Deputy Commissioner of Education (CLT) (Con't)

CLT19	DEPARTMENT OF CORRECTIONAL SERVICES TRAINING PROGRAM	William H. Humphrey Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT20	STAFF DEVELOPMENT - GOVERNOR'S OFFICE OF EMPLOYEE RELATIONS	William H. Humphrey Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT21	HOME MARKET VIDEO PROJECT WITH VESTRON VIDEO	Peter F. Stoll Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT22	HOME VIDEO PROMOTION	William H. Humphrey Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT23	MICROS FOR MINIS	William H. Humphrey Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT24	STAFF DEVELOPMENT - SED STAFF TRAINING	William H. Humphrey Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT25	SOFTWARE LIBRARY	William H. Humphrey Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823

Office of the Executive Deputy Commissioner of Education (CLT) (Con't)

CLT26 TECHNOLOGIES APPLICATION PLANNING PROGRAM	William H. Humphrey Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT27 PUBLICATION DISTRIBUTION	William H. Humphrey Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT28 PUBLICATION: VIDEO	Robert Reilly Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT29 STAFF DEVELOPMENT: VIDEO	Robert Reilly Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT30 VIDEO PRODUCTIONS	Robert Reilly Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT31 PUBLIC SERVICE ANNOUNCEMENTS	Robert Reilly Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT32 TELECONFERENCES	Robert Reilly Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823

CLT33	ELECTRONIC MAIL AND MESSAGING, VOICE MESSAGING	Charles C. DeVoe Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT34	NEWSLETTER	Charles C. DeVoe Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT35	COMMUNICATIONS - STAFF PRESENTATIONS FORMAT PROJECT	Charles C. DeVoe Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT36	MANAGEMENT/COORDINATION - BOCES EDUCATIONAL COMMUNICATIONS SERVICES	Charles C. DeVoe Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT37	STATEWIDE FILM AND VIDEO DATABASE AND CATALOGING PROJECT	Charles C. DeVoe Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT38	SOFTWARE REVIEWS DATA BANK	Charles C. DeVoe Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT39	INFORMATION MANAGEMENT, SURVEY COORDINATION	Charles C. DeVoe Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823

Office of the Executive Deputy Commissioner of Education (CLT) (Con't)

CLT40	PROGRAM MANAGEMENT/MONITORING - BOCES SHARED SERVICES (CO-SERS)	Charles C. DeVoe Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT41	PROGRAM MANAGEMENT/MONITORING - SPECIAL LEGISLATIVE GRANTS	Charles C. DeVoe Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT42	INTERNAL/EXTERNAL ADVISORY COORDINATION	Charles C. DeVoe Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT43	SPECIAL SURVEY OF LEARNING TECHNOLOGIES AND TELECOMMUNICATIONS	Charles C. DeVoe Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823
CLT44	FILM/VIDEO ACQUISITION CONSORTIUM	Charles C. DeVoe Cntr. for Learn. Techn. Cultural Education Center Room 9A47 Albany, NY 12230 (518) 474-5823